

Railway Age

Vol. 81, No. 8

August 21, 1926

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Saving Terminal Fuel

COAL burned at engine terminals constitutes an important part of the total amount consumed by the railroads and therefore offers a proportionately great opportunity for economy by efficient use. The institution of proper methods for cleaning locomotive fires, for rebuilding fires and for banking fires, when necessary to hold locomotives under steam pressure, have in more than one case resulted in marked savings. In an article in the July issue of the Frisco Employees' Magazine, C. J. Beshears referred to tests conducted on the St. Louis-San Francisco at Chaffee, Mo., in which a 1,300-class locomotive with 50 sq. ft. of grate area was "fired" with only 45 scoops of Illinois run-of-mine coal. In another test at Fort Scott, Kan., a small 2-6-0 locomotive belonging to the St. Louis-San Francisco was held under fire for 78 hours on only 26 scoops of coal, or approximately 390 lb., and the same coal was used in spreading the fire and making the locomotive ready for service. Experience has shown that it pays to insist on locomotives coming to the terminals with fires as light and in as good condition for cleaning as possible, considering the kind of coal burned. Appliances should be steam-tested promptly, and in cases where the locomotive fires are to be kept, the steam pressure should be used in storing water in the boilers, after which the fires can be banked and smoke stack covers applied so as to minimize combustion of the fuel and permit its subsequent use in raising steam pressure.

If 100 lb. of steam must be kept on the locomotives for occasional movements under their own power, coal has to be applied nearly every hour and the injectors worked, which wastes fuel. Proper planning will in many cases avoid this and other similarly uneconomical practices in fuel consumption at engine terminals.

Capitalize on Standard Highway Crossing Protection

THE long-sought-for standardization of automatic highway crossing signals is now available through the action of the American Railway Engineering Association and the Signal Section of the American Railway Association in adopting a standard for each of two types of crossing signals, the flashing-light and the wig-wag. Every effort should therefore be made by railroad officers to secure the adoption of the standards by the highway departments of all of the states, several of which have already approved them. With these standards in use throughout the country the highway traveler will recognize the significance of the automatic highway crossing signal indication more generally. He will also be responsible for his own actions to a greater degree, as is shown by the statement of an officer of the legal department of an eastern railroad to the effect that no case had yet been lost where a modern automatic high-

way crossing signal was in service. Such apparatus is now constructed and maintained to operate with a high degree of reliability, superior in the opinion of many local city officers to flagmen, and in some cases even to gates. The Pennsylvania recently placed 31 separate automatic flashing-light highway crossing signals in service at 13 grade crossings in Kokomo, Ind., as a result of which it was possible to relieve 10 watchmen employed 12 hours a day at a cost of about \$1,000 a month for wages. Using an article describing this installation, as published in *Railway Signaling*, as evidence, the Seaboard Air Line recently secured authority to install similar equipment in an important town on its line, and effected a decided saving in comparison with methods considered previously. These installations of standardized automatic highway crossing signals afford reliable and uniform protection 24 hours a day. The faster standard signals are installed the quicker the average motorist will learn the significance of the indications. Uniform action by the railroads regarding this matter will also assist in building up a record of cases to relieve the railroad of responsibility to a greater extent. The possible savings in life and in damages make uniform action well worth while.

The Railroad Noise Nuisance

THE railroad noise nuisance (not the automobile horn, which is perennial) always comes to the front pages of the newspapers about this time of year, when everybody's windows are open; and 1926 is no exception. A correspondent writing from Salt Lake City calls for the use of compound locomotives on all heavy long-distance passenger trains. On steep up-grades "the engines with their powerful exhaust pound the ears of the passengers by the hour." A compound certainly is a relief, in this respect, and any one who has to ride all night in a sleeper—or all day in any car—near the front of a train can readily sympathize with this complaint. Another, writing from Western New York, declares that freight trains, whistling for ten or fifteen seconds at the approach to each highway crossing, are now so numerous as to make piazza conversation in the evening practically impossible; and this at points 80 to 150 rods away from the railroad. Complaint of this phase of railroad noise comes from many different directions, and the varied expressions of irritation and disgust give point to the observations of recent correspondents, who remind us that the extensive annoyance thus imposed on normal citizens is wholly for the benefit of those abnormal individuals who figure in the long columns of the annual statistics as "driving into the side of train," "driving through gates in spite of watchman's warning," and so on. At Merion, Ardmore and Overbrook, on the main line of the Pennsylvania, near Philadelphia, where citizens aver that switchers and pushers destroy their peace both day and night, and that smoke, dirt and noise have

afflicted them for many months, the complainants are ready with a perfect remedy—electrify the whole road at once. If only the question of cost could be side-stepped, how quickly the whole vexation would vanish! The immediate problem of the operating officer is, of course, to enforce the best possible discipline *now*; this week, this month. Looking to the future, he may plan for new locomotives or for electrification, but the imperative present need is to allay the resident's irritation. The only thing possible in this line is, of course, to hunt still more carefully for every smallest instance of disobedience of those rules which are designed to insure the best possible freedom from noise.

Less Competition and More Co-operation Needed

COMPETITION between the railways is inevitable, under this nation's policy of private management and government regulation. On the whole it is beneficial to both the railways and the public. Developments constantly occur, however, which illustrate that when competition is allowed completely to subordinate or even destroy co-operation between railways it becomes destructive of the interests of all concerned.

A striking example of the effects that may be and frequently are produced upon the railways by competitive action in disregard of the need for co-operation between them is afforded by the threatened reduction in grain rates throughout the United States that has been precipitated by the action of the Minneapolis & St. Louis in filing a tariff providing for a reduction of six cents on grain and grain products moving via Minneapolis and Peoria to the Eastern Trunk Line and New England territories.

The millers at Minneapolis have long been complaining that the existing adjustment of rates places them at a disadvantage in competition with millers in other parts of the country. Conferences were held by the western and eastern lines in which the latter signified an unwillingness to concur in changes which would put the Minneapolis millers in a more advantageous position. Then the Minneapolis & St. Louis took individual action by filing a tariff providing for the six cent reduction above mentioned, and indicating that the eastern lines concurred. This was technically correct, because so-called "blanket concurrences" are exchanged by the railways of different territories. The eastern lines claim, however, that its action was unjustifiable because they had previously indicated to it their unwillingness to participate in the proposed reduction.

The Minneapolis, St. Paul & Sault Ste Marie has announced a reduction via Canadian lines to meet that proposed by the Minneapolis & St. Louis. Other western lines have refrained from taking similar action. Meantime, the Interstate Commerce Commission has been flooded with protests against the proposed readjustment of rates not only by the eastern railways, but by grain shippers and millers all over the country who represent that it would place them at a disadvantage in competition with the grain and milling interests of Minneapolis. The commission has suspended the proposed reductions until December 23, and will investigate the questions involved.

In view of past experience and the protests made by grain shippers and millers outside the Minneapolis territory, it is easy to conjecture what would have happened to rates on grain and grain products throughout

the country if the commission had not suspended this proposed reduction. No doubt the Minneapolis millers and officers of the Minneapolis & St. Louis Railway honestly believe that the present adjustment of rates discriminates against Minneapolis. Shippers and railways in other parts of the country undoubtedly are equally honest in the belief that the proposed readjustment would unfairly discriminate in favor of Minneapolis. Men always are strongly prone to regard such matters from their own selfish viewpoints. It is certain, therefore, that if this reduction had been allowed to go into effect shippers in other parts of the country would have insistently demanded that the railways serving them should make corresponding reductions. In view of the almost uniform experience of the past it seems probable that the other railways would have yielded to the importunities of their shippers. If this had been the result, the relations now existing between the rail rates on grain and grain products would soon have been virtually restored, while every railway would have been receiving less revenue for hauling it, and the aggregate loss to the railways would have been many millions of dollars annually.

The Minneapolis & St. Louis is the object of severe criticism from other railways for the action taken by it. The impartial observer may agree that this criticism is justifiable, and yet be somewhat cynical about it. Almost every other railway in the country has done things which, in principle, closely resemble what the Minneapolis & St. Louis has done in this instance. Over and over again officers of individual lines make more or less important reductions to favor some territory, community or shipper and get a competitive advantage for themselves, seemingly proceeding upon the naive assumption that the officers of other railways do not know how to reduce rates. But every railway is well equipped with officers who know how to reduce rates, however poorly it may be equipped with those who know how to get them raised. In consequence, in just about 100 per cent of all cases a voluntary reduction of rates made by one line on competitive traffic is promptly met by competing lines, the ultimate result being a reduction in the gross and net earnings of all of the railways concerned. Something similar is done with somewhat the same results when traffic considerations are allowed to influence purchases, or when extravagances in passenger service are resorted to.

For many years it was obviously to the interest of all and each of the railways to co-operate in carrying out honestly and fairly the car service rules that they had adopted. Nevertheless, before the Transportation Act was passed the car service rules were flagrantly violated by railways all over the country in every period of car shortage, with resulting injury to the roads as a whole and to each of them. Each apparently excused itself upon the ground that it was no worse than its neighbors and connections—which usually was true. They finally seem to have learned that co-operation in handling freight cars is better for all concerned than selfish and unfair competitive practices in handling them. Why do they not apply the lesson learned in that field in other quarters?

It has been only two years since the Interstate Commerce Commission, after long hearings, declined to order reductions in rates on grain and grain products in western territory upon the ground that the net return being earned by the western railways was not sufficient to justify them. It is only a few weeks since the commission rendered a decision declining to authorize a general advance in rates in western territory for which the carriers had asked, at the same time declining to order

reductions in the rates on farm products in that territory for which the agricultural interests had asked. Spokesmen of the railways had not ceased criticizing this decision of the commission when it was announced in the newspapers that the commission had suspended a large reduction of grain rates proposed in the very territory in which the evidence introduced in the recent rate advance case showed that the carriers were most in need of more revenues. Is it surprising, in view of such developments, that the public mind becomes confused as to what the railways really want and need? Is it surprising that the commission hesitates, because of fear of public sentiment, to let the railways have the rates they need, when they thus put it in a position where it has to antagonize public sentiment in a large territory in order to suspend proposed reductions of rates?

Every railroad man of experience knows that the railways themselves are largely responsible for all the troubles they have had and are having now. One of the main reasons why the railroad problem is so far from solution is that the railways have not learned to treat each other as they want to be treated by each other or even as they want the public to treat them. When all the railways quit doing the sort of thing the Minneapolis & St. Louis is now doing, and for which other railways are criticizing it, the railroad millennium will be nearer. It has to be postponed so often, not only because of what regulation does to the railways, but also because of what the railways do to each other.

A Sign of the Times

IT has been said repeatedly and with entire accuracy that the track is the foundation of a railway, for without track of adequate strength and proper maintenance the best of equipment is ineffective and fast and reliable schedules are impossible. The net earnings of the railways are now establishing new high records, due more largely to a reduction in the cost of producing transportation than to any abnormal increase in business. This reduction in expenses is made possible in no small degree by the improvements in maintenance of way that have been made during the last three or four years. Of equal interest to maintenance officers is the fact that the roads are returning a larger part of their earnings into still further improvements in their properties than in any recent year, the expenditures for maintenance of way for the first six months of this year exceeding those of the same period of last year by \$24,722,668.

A significant development is that programs for maintenance improvements are being made on a more comprehensive scale than previously. It is only natural that when the resources of a road are limited the funds available will be devoted to the "patching" of those "spots" needing attention most. This was the practice followed by most of the roads after their return from federal control and it still prevails on some from necessity. In general, however, it is giving way to more comprehensive programs involving improvement of entire districts and divisions, frequently including ditching, ballasting out of face, the complete renewal of rail, etc., the returns from which are more direct and larger than from patching.

It is by comprehensive work of this character that improvements in service are made possible. As an illustration it is said that the plans for the inauguration of 19-hour service between Washington and Chicago were laid by the Baltimore & Ohio management ten years before the Capitol Limited was announced and the main-

tenance of way department worked consistently during this interval in strengthening of the track structure between these terminals. It is by such systematic programs that real improvement in transportation service is made possible. It is a significant indication of the present trend in maintenance work that it is taking on more of the character of systematic programs of improvement, which is made possible only by the prospect of continued satisfactory earnings.

"Cost of Reproduction" and Railroad Development

EVER since the United States Supreme Court first held that, in this country, rates could not be so regulated by the government as to destroy the value of railroad and public utility property, it has been recognized as the law of the land that in making a valuation of such property the cost of reproduction must be considered. The ascertainment of the probable cost of reproduction is expressly required by the LaFollette valuation law directing the Interstate Commerce Commission to make a valuation of railroads. As counsel for the railroads pointed out in recent arguments before the commission, when representatives of the commission's Bureau of Valuation contend that present cost of reproduction should not be considered they are not discussing a question of law but one of economics. They are urging the commission not to carry out the law upon the ground that it ought to be different from what it is.

To many railway financiers and officers, the question of recognizing the cost of reproduction in valuation seems a highly technical one, in which they have no particular concern. Some railway officers fear that substantial recognition of cost of reproduction would result in an inflation of the basis upon which the railways are entitled to earn a fair return which would be inexpedient from the standpoint of the railways themselves. To the average business man or farmer who has never given any consideration to the subject of valuation of railroads and public utilities, the proposition that they should be allowed to earn a return, not upon the so-called "investment" in them, but upon what it would cost to construct them now, appears unreasonable or even preposterous.

It is probable that the weight to be given to cost of reproduction in the valuation of railroads will have finally to be determined by the Supreme Court. Meantime, the economic question involved should be made better understood, by full and frank discussion. The effects of the conclusion finally reached upon the income derived from railway securities, and upon the ability of the railways satisfactorily to serve the public, will be very important.

One fact which must be firmly grasped by every person who would understand the problem is the effect that has been produced by the great increase that has occurred during the last ten or eleven years in the wages of labor and the prices of commodities, and in the nominal, or money value of most kinds of property. These changes have not been due mainly to changes in real values. They have been due mainly to a decline in the value and purchasing power of money. An American dollar is worth much less today than it was before the war, as is shown by the universally known fact that it will not buy anywhere near as much labor or materials or goods of almost any kind as it would before the war. Now, the railroads were not built with dollars. They

were built with brains, labor and materials. If the amount of brains, labor and materials used in their construction up to the year 1914 had to be bought now, it would be necessary to pay at least \$1.50 to get them for every dollar that actually was paid for them. Some estimates of the change that has occurred indicate that it has been much greater than this. One estimate presented to the Interstate Commerce Commission in the recent western rate case was that, measured in dollars, the increase in the cost of railroad construction since 1914 has been 82 per cent. The commission, in its opinion in that case, found that it has been "certainly in excess of 50 per cent."

Now, if the present level of wages and prices is to be permanent, what would be the effect produced upon the net operating income the railways would be allowed to earn if the decline in the purchasing power of the dollar should be completely ignored in making a valuation of that part of their property that had been constructed up to 1915? Measured in money the net operating income they would be allowed to earn on the investment in that part of their property would be unchanged—presumably it would be $5\frac{3}{4}$ cents upon each dollar found to have been invested. But these $5\frac{3}{4}$ cents, if the decline in the value of money be taken as one-third, would buy now only two-thirds as much as they would have bought before the war, or the equivalent of only what 3.8 cents would buy then. The real value of every kind of property depends upon the purchasing power of the income derived from it. This decline in the purchasing power of the net operating income earned upon the investment made in the railways before the war would therefore, simply result in a permanent reduction of one-third in the actual value of the property in which the investment was made.

This reasoning shows the fallacy in the argument that is being pressed before the commission that valuation should be based entirely upon so-called "prudent investment." What this argument means is that no matter how much the purchasing power of money may decline no recognition should be given to its decline in the valuation of railroad property. But suppose the decline in the purchasing power of the dollar had been virtually 100 per cent, as was true in the case of the German mark. On this theory the true value of railroad property built before the war would have had to be written down virtually 100 per cent, because the purchasing power of the net operating income derived from it would have virtually disappeared.

The loss that would be inflicted upon owners of railway securities by such a policy of valuation needs no comment. A more important point is the effect that would be produced upon the development of the railroads and their ability to furnish service. It is a generally recognized fact that they must raise each year a large amount of capital and use it in improving and enlarging their properties if they are to be able to furnish good and adequate service. But the capital invested in a railroad consists of the property created by the use of brains, labor and materials. Now, it may be that, regardless of changes in the value of money, the railways can get at any time the use of one additional dollar of money by paying $5\frac{3}{4}$ cents annually for the use of it. But if each dollar they get will buy only as much brains, labor and materials as 66 cents would buy before the war, it obviously follows that either they must get more dollars with which to buy a given amount of equipment and make a given amount of improvements, or they must buy less equipment and make less improvements with the money they get. The total valuation placed upon the railways will presumably de-

termine the total average annual net operating income they will be allowed to earn in future; the total average net operating income they are allowed to earn will determine the amount of capital they will be able to raise and invest; and, therefore, if the decline in the purchasing power of money is not recognized in making a valuation of them, their ability to raise and invest capital to improve and enlarge their properties, will be reduced in proportion to the decline in the purchasing power of the money in which they receive their net operating income.

Legally speaking, the proposition that "cost of reproduction" should not be recognized in railroad valuation is a proposition that a large part of the value of the railroad property existing before the war should be confiscated. Economically speaking, it is a proposition that a valuation should be placed upon the railroads which would so affect the purchasing power of the net return they would be allowed that it might render them unable to make adequate enlargements and improvements in their properties.

Does this reasoning indicate that cost of reproduction alone should be considered? If it did it would run counter to decisions of the Supreme Court in which it has held that not only the cost of reproduction but also the original cost of construction and all other elements of value must be considered. The purpose of the court in these decisions was to prevent the confiscation of property devoted to a public use by a curtailment of the income derived from it when there was no similar curtailment of the income derived from other privately owned property. One very important question that has been given very little consideration has been the effect that has been produced by the decline in the purchasing power of money upon the nominal value of other property, such as farms, city real estate, manufacturing plants, mines, etc. Railways have no legal or moral right to be treated better than other owners of property, just as they have a legal and moral right not to be treated worse than other owners of property. It would appear, therefore, that if full recognition of the cost of reproduction would largely increase the valuation of the railways, while it could be shown that there had been no corresponding increase in the money value of other property, there would be no good reason for giving such full recognition to cost of reproduction in the valuation of the railroads. Nobody will question, however, that to a very large extent the money value of other property has been readjusted in proportion to the decline in the purchasing power of money.

The controversy over the cost of reproduction as a factor in valuation strikingly illustrates the enormous difficulties of carrying out equitably and beneficially any government policy of regulating business profits. The railways never sought a valuation of their property. They opposed it on the ground that the regulation of rates on the basis of valuation was unsound in principle and would be found impracticable. The valuation law was passed in spite of their opposition, and the provisions recognizing cost of reproduction as a factor were put into it not only because the Supreme Court had recognized that factor, but also because many advocates of valuation believed the cost of reproduction would be found less than the property investment account of the railways or their capitalization.

There can be no doubt that, excepting for the great decline that has occurred in the purchasing power of money, there would have been no such controversy as is now raging over recognition of the cost of reproduction. In fact, the Bureau of Valuation, in all its tentative and final valuations, has reported what it has

called "cost of reproduction." But its estimates of the "cost of reproduction" of the property in existence prior to 1915 have been based upon the wages of labor and the prices of materials prevailing in 1914 and 1915. It has even been contended that the valuation of the property constructed since 1914 should be based upon what it would cost to reproduce it at the wages and prices of 1914 and 1915. Obviously, to base a valuation of all or a large part of railroad property upon a "cost of reproduction" measured by the wages and prices of 1914 would be completely to ignore the only meaning ever attached to the words "cost of reproduction" by the courts, Congress, the Interstate Commerce Commission or anybody else prior to or at the time of the passage of the LaFollette valuation law.

The problem presented to the Interstate Commerce Commission, and which will be later presented to the courts, is as difficult as it is important, but the entire responsibility for the necessity of meeting and solving it rests upon those who have forced upon the railroads a policy of regulation predicated upon the assumption that the main function and duty of regulation is to fix and limit railway profits. If railway profits are to be regulated at all they must be regulated in accordance with the constitutional prohibition against confiscation of property and the economic necessity of letting the railways earn enough to provide good and adequate transportation. Completely to ignore great changes in the purchasing power of money in such regulation is absolutely out of the question. Regulation, if it is to be successful, must deal with conditions as they are, and not with them as visionaries and radicals hoped they would be, wish they were or think they should be.

An Example of Railway Leadership

TIMBER sufficient to build 100,000 six-room houses of average design, or enough to provide homes for a city of half a million people, such as Buffalo or San Francisco, is being saved by the railways of this country annually by their rapidly growing practice of treating their cross ties with preservatives to protect them against decay. The railways may well point with pride to this record, for it is not even approached by any other large wood-using industry. It is by means such as this that the railways hope to protect their future requirements for timber for those services for which wood is preeminently fitted.

The railways consume approximately one-seventh of all of the timber produced today. The continuance of an adequate supply in the future is therefore of direct concern to them. It has long been known that the injection of certain chemicals, principally creosote and zinc chloride, into wood will sterilize it against the agencies of decay. As early as 1875 the Louisville & Nashville began to treat its ties and other timbers with creosote. Another pioneer in the treatment of timber has been the Atchison, Topeka & Santa Fe, which has been thus protecting its cross ties since 1885. This practice has spread rapidly to other roads in recent years until 62,623,710 ties were treated in 1924, or more than 60 per cent of all of the ties inserted in tracks in that year.

It has been demonstrated that treatment properly administered will more than double the life of ties, increasing their service in track of from five to eight years when untreated to from twelve to fifteen and even

twenty years when treated. This is shown by statistics of the tie requirements on the Santa Fe on which during the last five years the average renewals have declined to 131 per mile of track, and in 1925 to 107, as compared with normal requirements of 250 to 300 untreated ties. Likewise on the Northern Pacific, which has resorted to treatment more recently, the renewals have declined from 292 per mile of track before treatment to 166 at present. The effect on the timber supply is shown by the fact that whereas 3,758,984 ties were required for the maintenance of 13,379 miles of track on the Santa Fe in 1910, only 1,936,497 ties were required for 18,054 miles of tracks in 1925. In other words, the ties required declined 48 per cent in these fifteen years in spite of an increase of 35 per cent in mileage.

At the present time, although the railways use only one-seventh of all the timber produced, over 90 per cent of all that treated goes into railway service. In other words, the other industries using six-sevenths of the timber take only 10 per cent of that treated. The leadership which the railway industry has assumed in this fundamentally important measure for the conservation of one of our most important natural resources is a tribute to its far-sighted management.

You Can't Go to Europe by Automobile

THE railroads are well able to face honest, constructive criticism. Moreover, they are broad-minded enough to recognize the merit, where such exists, in a critic's argument and to profit by the lesson he teaches. The value of such criticism is so great that it ought to be fostered even if at times the critic in his zeal for his argument tends to exaggerate his grievance. As a case in point, the *Railway Age*, on another page in this issue, publishes an article which is extremely critical of the railroads' activities with regard to passenger traffic.

Franklin Snow, the author, in this article advances some arguments which are, to our mind, illogical and find fault where none exists. In other places, however, we feel that Mr. Snow's position is sound and the points he makes valid. For instance, he makes a great argument out of the fact that "after devising the excellent slogan 'See America First,' our railways have allowed the ubiquitous family flivver and the palatial parlor bus to furnish the means by which Americans may see what lies beyond the range of hills in one's immediate vicinity." He then asserts that "the energetic steamship companies have accounted for the remainder of the reduced railroad tourist travel."

We should like to know on what figures Mr. Snow bases these statements. To the best of our knowledge railway tourist travel and long distance traffic generally are on the up-grade. "See America First" is a long distance slogan. Passenger traffic has declined in the field of the short haul. "See America First" or any other slogan or sales effort devoted to securing a greater tourist traffic will not bring back the short-distance rider. In many cases there is no way at all that such riders can be brought back to the railways. They are going to go by road and if the railway wants the business it will have to provide highway service—not, as a mere "retaliatory measure," which Mr. Snow calls it, but as a serious business effort.

Mr. Snow invites the reader to contrast the railroad attitude with that of the steamship lines. The steam-

ship companies, through the immigration act, lost a great part of their third-class traffic and made good their losses by building up the tourist trade. Very well—the railroads have lost business to motor vehicles for short hauls and, by way of compensation, are endeavoring—and with success—to build up a greater long haul business. Therein their enterprise has been along exactly the same lines—although perhaps not so intensive—as that of the steamship companies.

That such effort will meet bus competition, however, which means short distance traffic, is as unlikely as to expect steamship sales effort to affect bus traffic. Buses do not operate from New York to Paris and steamship sales effort cannot affect them; but neither do they operate from the Atlantic Seaboard to Yellowstone and the Yosemite.

We quite agree with Mr. Snow's point that there is room for improvement in the merchandising of railroad travel service. Perhaps the roads have not "gone out after" tourist trade with the same zeal as have the steamship companies. At any rate Mr. Snow's reasons for believing so merit careful thought. Indeed, aside from the points we have mentioned, his article has sufficient verisimilitude to give pause to any one who feels like singing with the poet, "God's in his heaven, all's right with the world."

The next time he takes up his pen on this important subject, however, we hope he will distinguish more clearly how he means the railroads should improve passenger earnings—by meeting highway competition or by developing tourist traffic (the two are not the same). For the railroads to try to regain for steam trains the identical traffic they have lost would be analogous to the steamship companies seeking to secure the return of unrestricted immigration. Specific methods of dealing with highway competition, i.e., the use of smaller units, such as rail cars and buses, Mr. Snow does not consider. Apparently, therefore, he wishes the railroads to recoup their losses by increasing tourist—i.e., long haul—traffic. And recent statistics show that this is exactly what they are doing—although perhaps not as intensively as some might wish.

Who Will Pay for It?

COINCIDENT with the completion of the electrification of the Illinois Central's suburban service in Chicago, described in the *Railway Age* of July 24, 1926, the municipal authorities and commercial organizations of that city have undertaken to put pressure on the other roads entering the city to electrify their lines and terminals. The first step in this campaign was to summon the executives of the roads concerned to appear recently before a committee of the city council to state their positions with reference to this subject. A report of the hearing appeared in the *Railway Age* of last week. In opening the hearing proponents of electrification advanced in support of their agitation the necessity for the suppression of smoke and the enhancement in real estate values that will follow in the outlying areas. While this particular agitation is local in character, it typifies a state of mind on the part of the public relative to railway expenditures that is not uncommon.

The argument regarding the railway's responsibility for smoke may be dismissed with brief references. The railways do produce smoke, but so do the hotels, the office buildings, the factories and the apartment buildings. An exhaustive survey made by the Chicago Association of Commerce ten years ago showed that the railways

were then responsible for only 10 to 15 per cent of the smoke released into the air within the city and that electrification would reduce the net amount of smoke by only 5 per cent. Since that time they have reduced this proportion materially by more modern combustion equipment and methods of firing, by reduction of the number of locomotives working within the city, etc. For the city to invoke its police powers against the railways without taking similar action against other smoke producing agencies would be so unreasonable and incapable of defense that this argument may be eliminated.

The second reason that has been advanced approaches more nearly to the real motive, for it would provide a talking point for real estate operators in their attempts to promote the further subdivision of outlying areas of land. In other words, it is expected that electrified suburban service would stimulate the sale of real estate, to the profit of those now owning it or engaged in its sale.

Electrification costs money. It was stated at the hearing referred to that the Illinois Central alone has already spent \$48,000,000 for the electrification of its suburban service and associated terminal improvements. The amount required to electrify the terminals of the other roads entering the city would aggregate several times that sum. Some way must be provided for the roads to earn a return on that investment if they are to be warranted in undertaking it. While some economies would probably be secured from electric operation as compared with steam operation of suburban service, few maintain that these economies would be sufficient to meet more than a fraction of the increased fixed charges. The remainder must obviously come from increased income. With the electrification of all roads entering Chicago, as now advocated, any competitive advantage of one road over another would be eliminated and an individual road could reasonably expect to secure only the normal increase in traffic in a growing industrial community.

The only recourse left to the roads to reimburse themselves for an expenditure of this character is, therefore, an increase in rates. This might be spread over the systems as a whole or allocated locally to the users of the special service. The Interstate Commerce Commission, in the decision that it has just handed down denying the western roads an increase in rates in the face of conclusive evidence that they are not now and have not received in any recent year the return which the commission itself has fixed as fair, has not encouraged any hope of the roads securing an increased return from expenditures such as this from increased rates spread over the systems as a whole.

This leaves the local users of the service as the only source from which to get needed increases in revenue. Since improvements of the character advocated are for the especial benefit of local business interests and suburban patrons in the vicinity of Chicago, it would appear only fair to look to them for reimbursement and to fix the rates in the local area on such a basis that they would yield an adequate return on the added investment advocated. But the real estate operators contend that such rates would be so high as to discourage the development of these outlying areas.

Since it seems to be admitted that the principal beneficiaries of electrification would be the present holders of real estate in the areas most accessible for suburban development and those engaged in the marketing of this real estate, it would appear only fair that they should bear the expense that would make these profits possible. But this has not yet been suggested by those agitating for electrification. It may be said with equal certainty that it will not be suggested by them. They are en-

gaged in the stimulation of sentiment to force the railways to spend vast sums for the benefit, not of the roads, their owners or even their patrons as a whole, but of real estate owners and speculators. Faced with such propaganda it will not be surprising if railway managers do not react favorably. Their duty is to their security-owners and their patrons as a whole, rather than to real estate profiteers of a single community.

Books and Articles of Special Interest to Railroaders

(Compiled by Elisabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

The Ports of the Territory of Hawaii, by Board of Engineers for Rivers and Harbors, War Dept. viii, 120 p. Pub. by Govt. Print. Off., Washington, D. C., 1926. 40 cents.

Periodical Articles

Are the Roads Hiding Their Real Earnings? by J. A. Pollock, Jr. Magazine of Wall Street, August 14, 1926. p. 748-750.

The Federal Trade Commission, a Critical Survey, by Myron W. Watkins. Quarterly Journal of Economics, August, 1926. p. 561-585.

Is This Country in Danger of Losing Its Air-mail? by Daniel Rochford. Boston Evening Transcript, August 14, 1926. Pt. 3, p. 2.

New Books

Railway Accidents (England), Legislation and Statistics, 1825 to 1924, by H. Raynar Wilson, 39 pages, 8 in. by 13 in. Bound in cardboard. Published by The H. Raynar Wilson Company, 96 Hurlingham Road, London, S. W. 6. Price six shillings.

The purpose of this book is to give a historical summary of the railway accidents in Great Britain during the 100 years from 1825 to 1924, together with a discussion of the legislation concerning the inspection and regulation of railways regarding safety devices. Charts given in this book show the gradual increase in train miles run and in passenger journeys in Great Britain since 1875, indicating an increase from 209,528,186 train miles in 1875 to 398,417,094 in 1924. A historical sketch is given of the different parliamentary actions, investigations and reports and orders concerning train accidents on English railways, starting with the Committee on Railway Communication which was appointed in April, 1839. Nine tables and two charts are given, setting forth in detail the causes of train accidents on English railroads, with the number of passengers and employees killed, separated for different periods under different classes of accidents. One table, as a summary, lists all train accidents fatal to passengers from 1825 to 1924, giving the date, places, causes and number killed in each.

GEORGE H. FLEWELLEN, a locomotive inspector of the Great Western Railway of England, just retired after 48 years of service, mostly as locomotive runner, is credited with having run the "City of Truro," when that G. W. R. locomotive accomplished "the world's highest authenticated speed," 102.3 m.p.h., on a down grade. This run was made with the Ocean Mail, in May, 1904. Mr. Fleweller once ran engine No. 3065 a distance of 118.5 miles, from Preston to London, in 99 minutes, 46 seconds, incidentally covering 81.75 miles at 91.8 miles an hour.

Letters to the Editor

Where Passenger Service Could Be Improved

IN THE BLUE RIDGE MOUNTAINS OF VIRGINIA.

TO THE EDITOR:

The rather tardy but well studied efforts of the traffic departments of many railroads to start on the upgrade again the curve representing annual passenger business seem to be deservedly successful. The notable recent improvements in through long-distance passenger service are numerous and welcome, and more are to be expected, yet there remain many opportunities for bettering schedules on the shorter runs which come into more direct competition with automobile travel. Here the opportunities to increase convenience to travelers are perhaps more numerous than those to increase the speed of the train service.

Some examples may demonstrate the possibilities: Not a thousand miles from the national capital are two cities of considerable importance to both tourist and business travelers; each has a population in the neighborhood of 200,000. These two cities are connected by two double-track railroads, parts of the main lines of two of the most prosperous systems in the United States. Each line operates three passenger trains in each direction daily between the two cities, and these trains make good time, as the best schedules considerably exceed 40 m.p.h. for the 2½ hour run. No reasonable person should find fault with the quality of the service; the equipment is modern and the employees are courteous. No reasonable person should find the trains too slow; it is true that the same runs were scheduled 10 or 15 minutes faster 23 years ago, but possibly the on-time records were then not as commendable as they now are. Moreover, no reasonable person would be inclined to find fault even with the frequency of service, though it scarcely could be considered remarkable in that respect, if only the trains were better distributed through the day. There is no train on either line between these cities between 6:00 P.M. and 9:00 A.M., and then both lines have a train in each direction, all with the same departure and arrival times. The trains during the three-eighths of the day, when service is available are, after the apparently unnecessary duplication in the morning, fairly well distributed. But is it any wonder that the more expensive and much slower bus service over the excellent concrete road between these cities is a flourishing business, particularly in the 15 hours of the day when there is no train service?

It may be added that the existing schedules are not forced by the requirements of long-distance through runs, as the trains between these cities are to a great extent independent of the longer through runs on these lines. Moreover, these schedules are not arranged to meet essential connections, for connecting service at one end is negligible, while at the other it is available almost at all hours, day or night. The schedules of 10 and 20 years ago were almost identical with those now in effect, despite the growth of the two cities, their vastly more important business interests, and the decided change in the means and methods of the population from that time to this.

Another example may be briefly outlined. A certain mining section in the Appalachian region is of sufficient

importance to be served by the branch lines of several of our largest railroad systems, and two of these systems run Pullman cars into this territory from their main lines. These cars, it is true, are carried on local trains on rather slow schedules, but the topography is one possible excuse for this situation. Naturally the local trains are scheduled to make connections with through trains at the main line junction points. The two branches referred to meet in the heart of this territory, one entering from the north and the other from the south, and each serves several good sized towns not reached by the other, yet the schedules give no indication that any effort has been made to have the trains on the two branches make any reasonable connections. No doubt the taxi and bus owners of this section thoroughly favor the four and six hour layovers which an all-rail trip would impose on interline travelers, but does this easily remediable condition add anything to the good will of these travelers to the railroads?

If space permitted, other examples might be cited. There is a delightful and fairly important resort barely over two hundred miles from New York City by a rail line operating through trains on schedules specially arranged for week-end vacationists, yet this resort cannot be reached from New York in one afternoon without an automobile, simply because the branch line train for no vital reason leaves the junction point a half hour before the through train arrives. In one of the Middle Atlantic states there is a rail line 180 miles in length which traverses a rich country of unusual scenic and historic interest. Though a unit from the economic standpoint, this line is divided into four sections, owned by three unassociated large systems. To travel by it from end to end northbound requires 12½ hours, while a southbound trip in one day is physically impossible because the trains do not connect at the junction points. Is it surprising that the parallel highway is uncomfortably crowded with automobiles?

Any reader with an Official Guide and a few spare hours will be able to find similar examples of unnecessarily inconvenient schedules, and most travelers can name instances they have discovered in person. It is to be hoped that the men who by experience and responsibility are best fitted to the task can find time to survey the territories with which they are most familiar to discover and remove such obstacles to convenient passenger travel by rail.

XERNES WITHERSPOON.

Eliminating Train Stops

DENISON, TEXAS.

TO THE EDITOR:

The editorial in your issue of July 10, entitled "Why Differentiate Between Stops" emphasizes the opportunity existing in the field which might properly be entitled "Long Runs with Long Freight Trains." Eliminating stops saves time and fuel; that came rather forcibly to our attention in 1918 when, by discontinuing the 31 form train order and using the 19 form only, 580 train stops were eliminated on one through freight division equipped with automatic block signals, in one month.

On this division 12 trains each way daily were being operated at that time, divided about equally between freight and passenger. Since that time the use of the 19 order has been extended to all divisions.

As we go along, we find new ways to eliminate stops, increase tons per train, and make more miles per hour. To the interesting example of a long non-stop run made

by our neighbor, the Missouri Pacific, please add these for the information of your readers.—On July 29, train 74, engine 734 (Mikado type with 54,000 lb. tractive effort) with 73 loads, 3,604 tons, made a non-stop run, from Franklin, Mo., to Baden Yard, St. Louis, a distance of 182 miles, in 8 hr. 10 min., with an estimated fuel consumption of 44.5 lb. of coal per thousand gross ton miles.

On August 7, the same train and the same engine with 77 loads, 3,797 tons, made a non-stop run from Franklin to Baden Yard in 7 hr. 50 min., consuming 32 lb. of coal per 1,000 gross ton miles, which establishes a record on our line. In this instance, the coal was carefully weighed at Franklin and Baden. On August 8, merchandise train No. 171 with the same engine and 92 loads, 3,029 tons, made a non-stop run from Baden to Franklin, in 9 hr. 20 min. Stops for water were made unnecessary by hauling an auxiliary water tank.

To make such runs, of course, requires considerable preparation and attention, but shows what can be accomplished by careful attention to locomotives and cars before leaving terminals. Such runs give us something to talk and think about; but after all, the real indicator of the freight train movement on any railroad is the average speed per train hour, which for our lines at the present time is better than 14 miles. Surely, the very pronounced improvement made by the railroads in this country during the past two years in more efficient train operation can be further improved by the continuation of enthusiastic and thoughtful supervision on the part of the officers and intelligent co-operation on the part of employees.

H. E. MCGEE,

General Manager, Missouri-Kansas-Texas.

Credit for the Improvement of the Mexican Railways

BUFFALO, N. Y.

TO THE EDITOR:

Since the appearance of my article entitled "Physical Condition of Mexican Railways Improving" in your issue of May 8, my attention has been called to the fact that this article has been interpreted as unfair in its implications toward the American railway men who originally operated the National Railways and the systems out of which it grew. As other readers may have received a similar impression from the article, I wish to deny any such intent.

The impression referred to may have arisen from the first paragraph of my article, in which it was stated that the Mexican railways are in a far better condition physically than they were at the end of the Diaz era. By "the end of the Diaz era" I had in mind the last three or four years of the brilliant decade from 1900 to 1910 which closed the 34 years' rule of Diaz, and I based my statistical comparison upon the fiscal year 1910, the best and last year of the old regime. The fiscal year 1911 saw greater physical improvements than any year before or after, and readers might quite properly assume that it should have been included in the Diaz era. But it is equally correct and preferable to put this year with the following period of transition, for the revolution against Diaz broke out in the fall of the calendar year 1910.

Evidently this paragraph was taken by some of my readers as a reflection upon the work of Americans formerly in charge of the National Railways, and as implying that all the improvements made since 1910

have been made by Mexicans. Rather, the American management remained largely in control of the National Railways for four years after the end of the fiscal year 1910, and many of the improvements since 1910 were made by this management. Notable physical improvements have also been made by the Mexican officers between 1918 and 1925.

In no respect did I mean to disparage the work of Americans, nor was I contrasting American with Mexican management, any more than American with English (several large Mexican lines were built and operated by Englishmen); my comparison was simply between two periods of time. Moreover, my statement had reference to the Mexican Railway and the Southern Pacific of Mexico, as well as to the National Railways.

Put very briefly, the three great systems of Mexico show a considerable physical improvement in the last 16 years, mainly in the following respects:

On the Mexican Railway the notable changes have been: (1) electrification of the mountain line, (2) erection of masonry stations, (3) new and improved equipment. The chairman of the company stated officially in 1922 and 1923 that his railroad was in a better physical condition than ever before.

On the Southern Pacific of Mexico, the leading improvements have been: (1) the completion of the line to Tepic in 1912; (2) the new link line between Tepic and La Quemada, the cost of which will be between \$12,000,000 and \$15,000,000; (3) ballasting; (4) laying heavier rail on the Tepic end of the old line; (5) miscellaneous bridges, sidings, new buildings, etc., part of a program of betterments expected to cost \$27,000,000.

On the National Railways the principal developments have been (1) new lines; (2) more heavy rail; (3) increase in ballasted track; (4) an increased number of locomotives. Since 1910 large sums have been spent on betterments, both by the corporation through 1914, and by the government since then. Examining in detail several of the changes on the National Railways, we find a notable increase in heavy rail as follows:

	1910	1911	1925
Per cent of line, 80 lb. or heavier		8.8	11.4
Per cent of line, 75 lb. or heavier		29.1	39.6
No. kms. of line, 80 lb. or heavier 800		1160	1560
No. kms. of line, 75 lb. or heavier		2510 or 2646	3844
No. kms. of sidings, 80 lb. or heavier .. 10.5		22.8	98.5
No. kms. of sidings, 75 lb. or heavier .. 11.8		28.9	146

If we omit the Tehuantepec line, practically all the rail of 80 lb. section or heavier in service in 1910 was on the Mexico-Laredo line, and was laid on less than half of this; by June, 1925, such rail would have been more than sufficient to lay this entire line.

Ballasting has also proceeded rapidly since 1910. If we assume 3,400 kms. ballasted on the lines now constituting the National Railways System by June, 1910, an amount which probably exceeds the actual, we find that since that date 1,721 kms. were ballasted in the years 1911 to 1914, inclusive, and 14,810 kms., in the years 1917 to 1925, inclusive (not counting 1919, for which no figures are published).

The number of locomotives is also increased, although the number of cars is still below that of 1910. There has been an increase of one-third in the number of locomotives since 1910 on the National Railways proper; 759 locomotives in 1910, 998 in 1925. Including the operated lines we find approximately 954 in 1910 and 1192 in 1925. The number of passenger cars on the National Railways proper is nearly as great now as in 1910, but freight cars are still a quarter below the former number. However, quite a percentage of the equipment is new, so that the serviceability of individual locomotives

and cars is probably greater than in 1910 because of improved type, power and capacity.

No one can make any study of the construction and later operation of the Mexican railways without becoming enthusiastic over the results achieved by Americans in their efforts to give Mexico an adequate system of transportation. Overcoming handicaps of pioneer conditions, lack of capital and of a trained personnel in earlier years, and the growing hostility of Mexicans towards foreign control in later years, they built and operated the leading systems in Mexico throughout the Diaz administration. During this period only a handful of Mexicans showed first-grade ability in transportation matters, but thousands came to be efficient in ordinary capacities. Without disparaging the considerable yet relatively modest work done by Englishmen, we may fairly attribute the bulk of the constructive work to Americans.

From the list of Americans who achieved prominence in Mexican railway building and operation, I select a few names, omitting some of perhaps equal merit.

The first railway, the English-owned Mexican Railway, was partly built by American engineers, among them Col. Andrew H. Talcott, chief engineer during part of the construction; Major Robert S. Gorsuch, S. Wimmer, M. E. Lyons, engineers; Thomas Braniff, the versatile superintendent of works.

On the Mexican Central: Rudolph Fink, the first general manager, who built most of the main line; Thomas Nickerson, Levi C. Wade, A. A. Robinson, respectively the first, second, and fourth presidents; Henry R. Nickerson, long the general manager and later vice-president; Lewis Klingman, for years the chief engineer.

On the National Railroad of Mexico; General Palmer, its promoter and first president, previously the builder of the Kansas Pacific and the Rio Grande; William G. Raoul, who rehabilitated the railway in its days of adversity; E. N. Brown, its last president, who became president of the National Railways after the consolidation, remaining in charge until the Carranza Government took over the lines, and who is now chairman of the Frisco and of the Pere Marquette.

On the Mexican International: Collis P. Huntington, the promoter and (until near his death) the president; Major Gorsuch and E. H. Hurley, who surveyed the main line.

On the Southern Pacific of Mexico: E. H. Harriman, who ordered the West Coast development; Epes Randolph and Julius Kruttschnitt, who carried it out; J. B. Finley, vice-president, who with others carried on operation during the revolutions; H. B. Titcomb and E. B. Sloan, respectively the incumbent president and chief engineer, who are carrying the line across the Sierra.

On minor lines, Col. Hampson and Arthur Stilwell (the latter English born), who created the Mexico, Cuernavaca & Pacific and the Kansas City, Mexico & Orient, respectively.

Some of the above names are well known because of brilliant achievements in the United States, but all deserve to be remembered by the railway public and by the Mexican people for the exceptional work which they performed for Mexico.

Two misstatements in my article in your issue of May 8, should be corrected. On page 1267 the number of locomotives in June, 1924, was given as 729, whereas the number should have read 1159. Also, the tie-treating plants mentioned on page 1266 as built in 1920 were actually built before the revolutions and evidently were simply reopened in that year.

RAYMOND CHAMBERS,

Assistant Professor of Economics, University of Buffalo, Buffalo, N. Y.



One of the 73-ft. Rail Motor Cars Built for the Boston & Maine by the Osgood Bradley Car Company.

Boston & Maine Buys Ten More Rail Motor Cars

Built for operation on long runs in main or branch line service—Distillate used for fuel

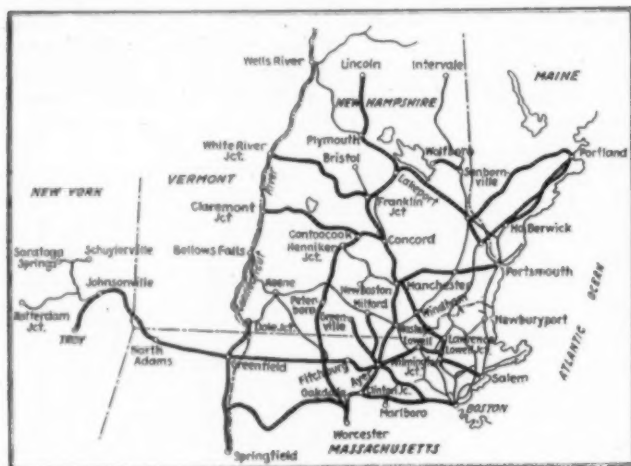
ON Tuesday, August 17, the Osgood Bradley Car Company, Worcester, Mass., delivered a 73-ft. rail motor car to the Boston & Maine, the first car of an order of ten. The complete delivery of this order will make a total of 24 rail motor cars in service on that road. All of the ten cars are identical in their equipment, details of construction and power plant, ex-

cept that two cars have a length over the body of 73 ft. 5/8 in., while the remaining eight have a body length of 61 ft. 5/8 in. The 73-ft. cars are intended for service on runs where the traffic does not require the use of trailers. They are a complete passenger unit in themselves, having both passenger and smoking compartments in addition to baggage space, as shown in the drawing of the floor plan of this car. The 61-ft. cars, however, are designed for trailer service and nine standard coaches are now being prepared for this service, with the same features of interior color design, car heating equipment and seats, together with mail compartments, baggage space and other details which are necessary for self-contained train service. The passenger compartment in the 61-ft. motor car serves as a smoker when trailers are used. The new cars are to be used on various divisions of the Boston & Maine on runs each approximating 200 miles a day. One of these cars is to be operated on a schedule that requires a daily run of 350 miles. In some cases the new equipment will replace other motor cars which will be assigned to less important runs while several of the new rail motor cars will replace steam locomotive train service. The map shows, in heavy black, the lines on which rail motor car routes are now in operation or will be when all the new cars are placed in service. At that time the Boston & Maine will be operating more than 2,500 train miles daily with rail motor cars.

Both the 73-ft. and 61-ft. cars are equipped with the same type of power units and control apparatus. Owing to the fact that these cars are to be operated in main line traffic, the designers selected a power plant that would provide plenty of capacity to make a quick get-away from stations and also travel at a high rate of speed for short or long distances as required. Although the 73-ft. cars are not designed for trailer service, sufficient capacity is provided to handle trailers when the traffic makes it necessary.

The power plant, which was furnished by the Electro-Motive Company, Cleveland, Ohio, consists of a six-cylinder Winton engine of new design, direct connected to a generator, manufactured by the General Electric Company, which has an output of 180 kw. at 1,000 r.p.m. The engine is designed to operate on a low grade fuel oil, such as distillate, the use of which is expected to effect a saving of about 50 per cent in price. The engine develops 275 hp. at 1,000 r.p.m. and has 7 1/2 in. by 8 1/2 in. cylinders. Two dual ignition Bosch magnetos provide an ignition service of four plugs to each cylinder. Duff carburetors designed to handle low grade fuel are applied on all ten cars. In case it is desired to use a higher grade fuel than distillate, such as gasoline, the only items that have to be changed are the carburetors and manifold. Provision has been made for starting the engine either by compressed air, electric starter, or by hand.

The truck under the engine room end of the car is used as the driving truck and is equipped with two Gen-



Map Showing the Boston & Maine Lines on Which Rail Motor Cars Are Operated

cept that two cars have a length over the body of 73 ft. 5/8 in., while the remaining eight have a body length of 61 ft. 5/8 in. The 73-ft. cars are intended for service on runs where the traffic does not require the use of trailers. They are a complete passenger unit in themselves, having both passenger and smoking compartments in addition to baggage space, as shown in the drawing of the floor plan of this car. The 61-ft. cars, however, are designed for trailer service and nine standard coaches are now being prepared for this service, with the same features of interior color design, car heating equipment and seats, together with mail compartments, baggage space and other details which are necessary for self-contained train service. The passenger compartment in the

eral Electric motors, rated at 150 hp. at 600 volts. All ten cars are equipped to operate from either end, the operating cab at the rear end being located in the vestibule and entirely enclosed.

An interesting feature in the design of the power plant



Interior of the Baggage Compartment of the 73-ft. Car

is that two radiators are employed for cooling. One of the radiators is of the automobile type and is located in the end of the car. The other radiator is located on the roof and consists of a series of pipes provided with fins



The Wide Windows and Low Ceiling of the Passenger Compartment Add to the Attractiveness of the Car

to obtain increased radiation. A large fan draws air through the vents in the automobile type radiator and exhausts it through the radiator on the roof. Water in

the radiator system, however, does not circulate through the roof unit unless the engine is running. This arrangement eliminates the possibility of the roof unit freezing up in cold weather while the car is standing idle. The hot water car heating system is also connected to the radiator system so that the end radiator can be kept warm in cold weather. This facilitates the starting of the engine, especially after it has been standing idle over night and also prevents freezing.

The two 73-ft. cars are equipped with Areola heating units, while Peter Smith heating units are used on the eight 60-ft. cars. In both cases hot water is supplied to fin-type radiator pipes which are located near the floor along each side of the car in much the same manner as with the usual type piping. Approximately 5½ times

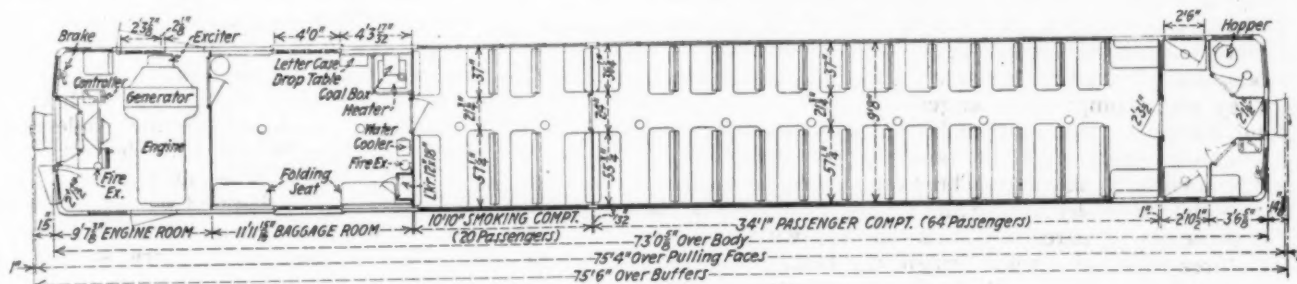


View of the Front End of the 73-ft. Car Showing the Location of the Two Radiators

as much radiation is obtained, however, with the fin-type piping as with the ordinary type. The hot water heating units are located in the baggage compartment, as shown in one of the illustrations.

Body Design Contains Many Unique Features

The body design of the 61-ft. cars is the same as that of the 73-ft. cars except that the passenger compartment is used entirely for smoker service and the seats are all finished in Pantasote. The inside width is 9 ft. 8 in. and the width over the eaves is 10 ft. The height from the rail to the crown of the roof is 12 ft. 2½ in. The passenger compartments have a row of seats on one side of



Floor Plan of the 73-ft. Rail Motor Car

the car seating three persons and a similar row seating two persons on the other side with a 21¾-in. aisle space between. The toilet is located in the vestibule, as shown in the drawing, which provides additional privacy and also locates the hopper away from the trucks. The baggage room in both the 73-ft. and 61-ft. cars have the same general equipment, consisting of two folding seats, water cooler, locker for the crew, etc., the location of which in the 73-ft. car is shown in the drawing. The baggage room for the 61-ft. car, however, has a total length of 16 ft. as compared with 12 ft. for the 73-ft. car. This additional space permits the installation of an extra folding seat in the baggage room of the 61-ft. car. As shown in one of the illustrations, the ceiling is placed lower than is usually the case in passenger cars to give added efficiency in lighting and heating. The designers devoted considerable attention to making the interiors inviting to travelers. The use of narrow all-metal sash and small side posts has added much to the attractiveness of the car. This design provides an unusually large window area. The color scheme is a pleas-



Looking into the Operator's Cab—Both the 73-ft. and 61-ft. Cars Are Equipped to Operate from Either End

ing, leaf green enamel on the walls with the ceilings finished in light gray. The seats are of Heywood-Wakefield construction and in the rear passenger compartment are upholstered in plush dyed to a special tone of green to harmonize with the general color scheme. Pantasote covering is used on the smoking compartment seats. The baggage compartments are finished in a deep buff color. Duralastic flooring is used throughout. Central ceiling lighting, using rigid pendant lights with white diffusing shades, is applied in all the new cars. These fixtures, together with the reflecting surface of gray on the low ceiling, produce a well distributed light. Special attention has been given to the ventilation of cars and all are equipped with a type of ventilator manufactured by the Osgood-Bradley Car Company.

The cars are equipped with Commonwealth trucks and have 33-in. wheels with 6 ft. between wheel centers on the trailer trucks and 7 ft. between wheel centers on the power truck.

D. L. & W. Train

Control Approved

WASHINGTON, D. C.

DIVISION 1 of the Interstate Commerce Commission has approved, with certain exceptions, the installation of the two-speed continuous induction train control system of the Union Switch & Signal Company on the Buffalo division of the Delaware, Lackawanna & Western, between Elmira, N. Y., and East Buffalo, 141 miles of double track, including the equipment of 69 locomotives.

The cost of this installation, as reported by the carrier, covering wayside and locomotive equipment, is as follows:

Number of road miles equipped	141
Number of track miles equipped	282
Total cost of roadway equipment of train control installation, less power lines and power apparatus, and less signals or cost of change in existing signal system; less salvage	\$120,372.26
Total cost of power lines and power apparatus, less salvage ..	58,986.32
Total cost of signal system installed in connection with train control; less salvage	0
Total cost of changes in existing signal system made necessary by train control; less salvage	155,342.13
Total all other roadway equipment costs	6,354.47
Total cost of roadway installation	341,055.18
Number of locomotives equipped	69
Cost per locomotive equipped	\$3,458.98
Total cost locomotive equipment installed	238,669.62
Total cost of installation	\$579,724.80

As a result of inspection and test, it is found that the installation meets the requirements of the commission's specifications and order, except as noted below, and therefore, it is approved, except as hereinafter indicated:

- (1) All locomotives must be provided with pressure-maintaining valves.

The railroad company is expected to comply with the following requirements as to maintenance, tests, inspection, etc.

1. Instructions and records relative to tests of locomotive and roadside apparatus, cleaning periods, and seals, should be consistently observed and continued. . . .

2. The automatic cut-in feature as installed is designed and operated on the open-circuit principle, and while the cab indication is intended to apprise the engineman of a failure of the device to cut in automatically, it involves reliance upon the human element, and where necessary to depend upon it, should be supplemented by such additional check as may be practicable. The plan in effect on this installation at the time of inspection appears to be reasonably adequate and should be continued.

3. Those pneumatic portions of this device, which contain functional parts essential to brake application and which are located outside of the cab, must be protected adequately against freezing. The experience obtained thus far has not been extensive enough to be conclusive, and the matter should continue to have close attention.

4. The shunt circuit, as used in this installation to impose a restricted speed limit when a switch is open, is passed with the understanding that the arrangement of this shunt circuit at cross-over and turn-out switches, including the lead wires, bonding, and switch circuit controllers, must be so maintained that an imposed low-speed limit due to an open switch shall not be released at such distance from the open switch as to permit the speed of the train to be so increased as to introduce an element of danger. Should this arrangement be found impracticable to maintain, other means of protection must be applied. This is based upon a recognition of the importance of the matter, and not upon any neglect observed during the inspection of this installation.

5. The type of fouling protection employed at sidings should be given careful consideration with a view to possibly providing additional protection.

6. The circuits at the Erie interlocker, Mt. Morris, should be so arranged as to prevent the display of a clear signal for a D. L. & W. train with a short train on the other line occupying the track between the derails at this crossing.

The railroad company is expected to promptly and currently inform us as to the progress made in conforming to all of the above stated requirements and recommendations.

Commissioner McManamy did not participate in the disposition of this case.

Recapturing the Rail Passenger

Railroads can learn from steamship companies methods to create new traffic—Better merchandising needed

By Franklin Snow

WHEN the immigration laws caused a sharp decrease in the number of third class passengers carried by the trans-Atlantic steamship lines, the companies met it by developing a "tourist third cabin." Instead of sitting back and bemoaning their fate, they proceeded to create a new type of travel which promises to produce even greater earnings than that which was obtained from the steerage trade. They have popularized travel. No education is considered complete today unless it is topped off with a European trip.

Not so, the railroads. They have suffered a decrease of 25 per cent in passenger business in the past five years, considered either from the standpoint of revenue or "passenger miles." But unlike their aggressive and progressive neighbors, the water lines, they have done almost nothing to stem the tide of business which is gravitating to the motor bus lines and the private automobile. After devising the excellent slogan "See America First," our railways have allowed the ubiquitous family flivver and the palatial parlor bus to furnish the means by which Americans may see what lies beyond the range of hills in one's immediate vicinity. The energetic steamship companies have accounted for the remainder of the reduced railroad tourist travel.

Railroads Take What Is Left—

Motors and Steamers Take Pick

So certain had the railways become that the passenger business was their rightful heritage, that they accepted it as a matter of course. When the rubber tire proved its supremacy over the steel wheel, their astonishment was so great that after five years of rapidly diminishing pleasure travel, the railroads have not taken any effective steps to counteract the menace. For long journeys, the railroad is still supreme. Few persons ever take a second trip across the continent or to Florida by motor. But for shorter journeys, the person who owns a motor car never considers any other method of transportation when planning a pleasure trip. The railroads simply do not exist for him. What is left after the automobiles and steamships have exerted their sales efforts on prospective travelers, the railroads obtain.

With the vogue turning from rail journeys to motor trips to the scenic parts of America some drastic steps to recapture the vanishing railroad tourist is essential. What direction they will take remains to be seen.

It cannot be said that the railroads, during the heyday of their popularity with tourists, failed to welcome their patrons or to provide adequately for their comfort. The best accommodations in the shape of improved Pullmans, coaches and dining cars were constantly added to the equipment, but having given the passengers the benefits of innovations which each road, to meet its neighbor's competition, was forced to provide, the planning and catering to the traveling public stopped there. Merchandising the wares of a railroad was never conducted in the comprehensive manner that a merchant undertakes to "move" his goods. Even in the face of a large decrease in business in recent years, the railroad attitude has not changed greatly. But it is in process of

undergoing a revolution. It has to, in fact. Old methods have proved futile and new schemes must be developed.

Having enjoyed a monopoly for almost a century, the railroad managers have been so non-plussed at the sudden popularity of the rubber-tired cars that they have thus far confined themselves largely to the charges of "unfair" and unregulated competition. A few retaliatory measures have been taken such as the establishment of rail bus lines, the speeding up of passenger schedules and better equipment of trains, although it cannot be said that any great amount of imagination or salesmanship has been exhibited in meeting the new competitor, resplendent in its shining varnish and nickel trimmings.

Steamship Lines Develop Profitable New Business

Contrast this with the attitude of the steamship lines. When they found one means of profitable travel shut off they immediately proceeded to develop another. Within a year or two after the immigration quotas had been definitely reduced, the student tour, or "tourist third cabin" became the accepted thing among the principal ocean carriers. Aside from some dispute as to whether the Cunard or the White Star Line was the originator of the plan, the movement to stimulate ocean travel has been concerted and fruitful of results. Americans have been "sold" on the idea of going abroad as they had never before been sold on any other place to visit. Niagara Falls and Washington, in the palmiest days of rail travel, never witnessed the scenes such as those which occurred along the North river waterfront in New York on the day when the largest contingents of student tourists started abroad this summer. College men and women, artists, journalists, teachers—the hoi polloi of the educated masses—who never dreamed of crossing the Allegheny mountains to see the Indians on the plains of Ohio, and the cowpunchers in Tom Mix hats and white chamois gloves who brandish six-shooters in the wilds of Indiana, are blithely traveling abroad to step the Champs Elysées and tour England on foot. It matters not to most of them that they are traveling, actually, in the freshly whitewashed "steerage" quarters. They have been sold on going abroad as American railroads never sold Americans on the urge for viewing the world's wonderland which lies west of the Mississippi, and they are bound for Europe.

"See Europe Next" supplanted the good old slogan "See America First," which, by reason of spasmodic railroad advertising, had succeeded in coaxing some scattered part of our eastern populace across the Hudson river and brought more of our western folk east to tell New York of the advantages (so-claimed) of California.

"See Europe Next" had an appeal beyond all expectation. Those who had never seen much of anything else, felt the urge. Supported by excellent advertising copy throughout the land, mentioning not only the palatial accommodations of the Leviathan, Majestic, Berengaria and Paris but of the "tourist third" and the popular one-cabin boats "with the American idea of equality," so we read, the merchandising of the fertile minds of the

ocean passenger officials caught the popular fancy of America young and old. In some colleges, it is reported, the popular form of query has changed from, "Where are you going this summer?" to "What boat are you sailing on?"

In thousands they throng the eastbound liners in June, and in almost equal numbers (some spend all their money and cannot get back) they return in September. Where once the stolid immigrant sat and gazed into space, or idly strummed a guitar for six or eight days, the intelligentsia now congregates to settle the affairs of the world while crossing the Atlantic. For the equivalent of little more than two and one-half round trips between New York and Detroit, including Pullman, the ocean steamship companies carry a passenger from New York to any port in England or the Continent and return, with meals and berth included. The largest express liners carry the tourist third cabin passengers, in the rush season.

That there are passengers in "better" classes on the upper decks is not a matter of great concern to most of the tourists, it is reported. All the fun on the ship, and admittedly all the really aesthetic thought, centers in the tourist third, the gallant young travelers reason. A few of the boys, it is true, wandered up to the first class in their dinner suits occasionally and danced with the bored young damsels in those sacred quarters, who welcomed an invasion from the decks below, but even at this, the steamship companies winked knowingly.

Railroads Give Steamships Free Publicity

Their idea had proved profitable. The third class quarters again were filled. The dollars were rolling in and their planning had resulted in the creation of an heretofore unsuspected source of revenue. Not only had the steamship lines created a new form of travel under the slogan of "See Europe Next," supported by adequate advertising and moderate rates, but they had prevailed upon their railroad friends to give publicity in their timetables and elsewhere to the new idea, on the grounds that it would create rail travel to points of embarkation. With true business acumen, and with apparently complete indifference to the fact that the money spent for the ocean and European journeys might otherwise be corralled by the American railways, the latter "fell" for the proposition and gave free publicity to the tourists' trips to Europe. One railroad even named a train the "Trans-Atlantic Limited."

Meanwhile, rail travel continued to decrease, although recent months have shown a slight upward turn. Obviously it is the motor competition which is causing the greater part of the loss, the story of the steamship companies' efforts being offered primarily to show how their passenger officials met a similar situation and converted a serious reduction in business into an actual profit by the display of originality and imagination.

Need for Imagination

"Imagination." The word connotes any number of things, the bulk of which are lacking in American railroad passenger departments. Trained as the majority of railroad men are, this is probably not surprising. Younger employees are not encouraged to make suggestions or to display any imagination in handling their work, and in consequence they become routine in every respect. When they reach more responsible positions many of them have lost any desire to steer their ships in uncharted channels and would rather allow themselves to be piloted safely along the courses followed by their predecessors. If excursion rates, "circle tours," extensive advertising and other features were not con-

sidered advisable by the former officials or by other railroads, the new man often sees no need for experimenting with such ideas. It just isn't done, that's all. In the exceptional cases where it is undertaken, an increase in business is the inevitable result.

Salesmen of Transportation Needed

So general a statement is, of course, subject to specific exceptions. Take the Boston & Maine Railroad, for instance. The rejuvenation of this company has proceeded apace in the past three years and the road has amazed and almost shocked its neighbors by its energy and originality. Here and there, other roads have also distinguished themselves by promoting the travel spirit of the American public, first by advertising and, second, by offering a bargain in the matter of rates. Such pioneering has invariably been profitable. One company has even scheduled a through tour from New York to Niagara Falls, east through Canada and return to New York from Montreal through the lakes and the Hudson River. Another has prepared an itinerary for a group of college men to go to the North Pacific Coast with stops at all points of interest, including scenic sights, mines, lumber mills, hydro-electric plants and the like. But such innovations are so unusual in American railroad merchandising that they are almost revolutionary. The average official received his appointment, not because he was a salesman of transportation, but because he was a rate expert.

Excursions and Reduced Rate Tours

The return to the old excursions was attempted by a few roads last year with gratifying results. Trains in several sections carried persons to Canada or Niagara and return the following day, traveling in day coaches. But having offered such bargain rates, the railroads' merchandising of transportation stopped. No attempt has been made—other than in the round trip tickets to the west—to popularize travel in the sense that the steamship companies have done. With empty space in the Pullman cars on many trains, it is obvious that reduced rate tickets for "circle tours" could be sold and would tend to fill some of the partly empty parlor and sleeping cars. Such tickets could not be utilized by the commercial travel since the routes would be useless to them. With hundreds of thousands of people in all the large eastern cities planning vacations each year, the railroads make no particular effort to obtain this traffic, which, in consequence, goes to the steamship lines and the buses. The "Filene plan" might be applied to rail travel, with bargain rates during the "off season" and with hotel charges included in the round trip rates.

Last year the writer was informed that it would be impossible to buy a round trip ticket from New York to Canadian cities and return via Boston because the initial part of the journey was by water. Not only were there no *reduced* rates offered for a journey of this kind, such as would actually *create* travel in a direction sought probably by many thousands of prospective vacationists, *but there were not even through rates*. One could not buy a ticket in the city of New York to make such a journey, unless, perchance, he visited the "off-line" agencies of the roads and ship lines to be used and bought individual tickets from each one. That, in short, is an example of railroad merchandising. Space might even be given to recount the attitude of some of the ticket sellers in these offices although it is probable that the railroads do not countenance discourteous attitude on the part of their employees, and that a report of such treatment would have been promptly rectified.

The crux of the matter seems to be that there is some

little trouble occasioned in the traffic and accounting departments by making such through rates, and auditing them afterward; hence, it apparently is felt to be more desirable to lose the business than to make it as easy as possible for a person to travel on tickets which can be purchased at one time in one office.

Railroad Advertising

With the example of motor car advertising conducted on a scale never before attained by any industry, the railroads have refused to spend any appreciable sum in telling the merits of rail travel. Even where sizable advertising appropriations have been made, the railroads have allowed advertising agencies to spend their money exactly as they pleased, the agency demanding *carte blanche* and the railroad surrendering even the right to recommend the publications which it feels should be on the advertising schedule. But even this is better than no advertising at all. There is a large army of potential rail passengers, many of whom prefer a railroad to an automobile for the longer journeys. Of the population of the United States, only 18,000,000 families own motor cars, representing perhaps 50,000,000 persons. This leaves more than 60,000,000 to whom the railroads can sell their services.

No indictment of the passenger men, among whom the writer has the pleasure of many friendships, is intended. In many instances their hands are tied. Rather than a critical attitude, the object of this paper is a plea for more originality. Let the passenger service be made distinctive in the many ways which are possible; let the departure of the important trains be a real event of the day; let the passenger feel that as much prestige attaches itself to travel on an extra-fare limited train as it does to a Cunarder or an "Empress" liner.

Developing Individuality in Trains

Let the service on trains differentiate itself from the standardized routine on American roads. It is not impossible to develop individuality even in a passenger train. In fact, it has been done in one or two outstanding instances. Yet there is so little imagination displayed that one cannot recall ever having seen a railroad distribute fans to the ladies, bearing the name and picture of the railroad, or other little novelties of this nature. In short, nothing is done to make trains distinctive, or, by the introduction of the unusual, to interest patrons in the services of the road in question.

Originality, why hath thou let thyself become a lost art in the railroad passenger business? With a hundred little innovations which would make travel attractive and interesting, one seldom finds anything on one limited train which distinguishes it particularly from another. *The result:* A 25 per cent decrease in passenger revenues in five years.

Perhaps the need is for a "sales manager"—one who knows nothing about railroading but a whole lot about selling goods. It matters not whether the goods are razor blades or motor cars, just so as the salesman is able to bring this experience to the railroad, and produce business. The passenger department might profitably be divided into two branches—production and sales—the former taking care of the details such as rates, tariffs and office routine, and the latter going after the business which is awaiting a live salesman, as has been shown by the success of a few roads in creating passenger traffic.

The rail passenger can only be recaptured through intensive efforts at merchandising. The steamship companies have shown that it can be done. They have parodied the railroads' slogan of "See America First" by

the "See Europe Next" injunction to travelers, and it is the railroads' turn to strike back, not only at the ocean carriers, but at the bus and private automobile.

"There is no car like the Pullman car," might prove as valuable a slogan as the railways could offer, augmented by proper advertising, supported by bargain rates and supplemented by adequate and courteous attention to prospective tourists. Let the letter reading as follows be definitely relegated to the past.

"Dear Sir: Your favor without date received. I beg to advise that under separate cover, booklets of the trip you mention are being sent you. Trusting this answers your inquiry, Yours truly."

Let there be a display of real salesmanship through the use of a more cordial form of reply. Compare the following with that which precedes it:

"My dear Mr. Jones: Replying to your inquiry, we take pleasure in sending you several booklets, together with timetables, bearing on the trip which you contemplate. If, after perusing them, you will advise more definitely the exact tour you have in mind, we will be very happy to suggest an itinerary or have one of our traveling men call at your office or home at a time convenient to you. Assuring you of our desire to make your trip over our lines as pleasant as possible, Sincerely yours,"

Which letter gets the business? The writer has received enough of the first-mentioned sample to be quite certain that it is the type generally used by American railroads. Merchandising requires something more than a curt letter. It requires the human touch. By employing the latter, the missing passenger can be recaptured.

C. & E. I. Operates Fruit Train

A FRUIT and vegetable demonstration train featuring better marketing methods, which was recently operated over the Chicago & Eastern Illinois and which made stops at 34 stations in Southwestern Indiana and Southern Illinois, was visited by



Fruits and Vegetables Were Exhibited

12,000 people or an average of about 350 per station. The train was run to give practical information to growers and shippers in the marketing of this year's crop of fruit which is the largest ever produced in that territory. In Indiana the railroad received the co-operation of Purdue University and in Illinois, of the Illinois State University, which universities helped by planning and arranging exhibits and furnishing fruit and vegetable specialists for lectures. Among others who co-operated were the Freight Container Bureau of the American Railway Association, the Fruit Growers' Ex-

press, the Western Weighing and Inspection Bureau, the Illinois State Department of Agriculture and the United States Department of Agriculture.

One car of the train contained fruits and vegetables which were arranged to show the different grades and the improved methods of packing. Experts were stationed in this car to explain the U. S. methods of grading, methods of packing and the importance of eliminating culls from shipments. This car attracted a great deal of attention, and the fruit growers spent much time studying the exhibits and the suggested methods of



Interior of Exhibit Car Showing Methods of Marketing

marketing this year's crop. Considerable attention was given to the explanation of the U. S. Shipping Point Inspection, which will be available in Southwestern Indiana for the first time this season, and fruit and vegetable men were urged to take advantage of this service.

Two coaches were fitted for moving pictures and for lectures, the pictures shown including those of the fruit industry and the new Chicago produce market. A refrigerator car attached to the train contained exhibits showing the proper method of loading various types of packages. Representatives of the Freight Con-



Farmers and Their Families Visited the Train

tainer Bureau of the American Railway Association, the Fruit Growers' Express and the Western Weighing and Inspection Bureau were stationed in this car. This car was kept iced during the hot days when the train was on the road. A business car was attached to the train to accommodate the specialists co-operating with the railroad. At all points where the train made stops it received a good reception from farmers and business men. At many of the towns the business men and farmers entertained the men traveling with the train with a dinner or a basket luncheon.

Southern Pacific Awards Courtesy Essay Contest Prize

THE first grand prize of \$50 in the courtesy essay contest conducted by the Bulletin, the Southern Pacific employee's magazine was awarded to Miss Jessie A. Wade, a ticket clerk at Oakland Pier, Cal., by the heads of six western state universities, who served as judges in the contest. William O. Christian, a red cap porter, also of Oakland Pier, won the second prize and J. P. Chaddock, a motive power accountant at Tucson, Ariz., was given the third grand prize. Fifty-nine cash prizes were also awarded the best essays from the various divisions and general shops. A total of 574 essays were submitted in the contest and were written by employees in all branches of service. While a majority of the essays were from men and women whose duties keep them in frequent contact with the traveling and shipping public, some of the best ones were written by maintenance-of-way workers, shopmen, enginemen, office employees and others who seldom have a chance to meet the public in a business way.

Courtesy as an asset in obtaining and holding traffic, as an aid in advancement to better positions, as a means of bringing team work among individuals and departments, as a creator of friendships, and as a source of great personal satisfaction through the mere decency of its practice, constituted the subject matter in a majority of the essays. "Courtesy costs nothing, yet it enriches all," was the theme of Miss Wade's prize winning essay. "Across the little square of my ticket window," she wrote, "studies in human nature pause and pass on, each going somewhere and eager to get there. One has but a moment to serve and the quickest avenue is through courtesy. Our Oakland Pier is a world all its own. Here is life—joys, anticipations, disappointments. A timid old couple on their way to their daughter—a for-eigner who doesn't understand and patiently meets all trains until he finds his 'Rose Marie'—a grandfather to meet his first grandchild, just has to tell some one. A smile brings understanding. And so the throng passes on. There is no mood so ugly, no heart so hard, no soul so sad that will not melt under the spell of courtesy. People's travel difficulties are usually not large. They only seem large to them. To make friends, be friendly. It's the individuals who make a railroad. Make our railroad a friendly road and its fame will travel far. Be happy to serve and the public will come again to be served. But really, it's fun just to smile and see the 'Thank You' smile returned. 'A pleasant journey to you' and you've made a friend for your road. Yes! Courtesy costs nothing!"

Some of the essays were written in a humorous vein, the one submitted by D. S. Riggs, electric train brakeman of Oakland, being outstanding in its originality. "I wonder, sometimes," he wrote, "if the psychology behind discourtesy isn't inherited from forgotten generations who wore tails and fur pajamas. In those days discourtesy was the key to self preservation. The louder the growl, the safer the animal. And primitive man was there a million! His growl was so ferocious that it made his shadow jump. We know today that the man with the growl is a bluff; it's the quiet man we watch."

"Courtesy is a common sense in action," wrote Christian. "It is the compound engine of efficiency which pulls the whole train of good business. Courtesy is not the act of a hireling, it is the outward expression of the gentlemen within."

Tests of Trusses Show Strength of Welded Joints*

Investigation develops sound method of fabricating structural steel by the gas process

By H. H. Moss

The Linde Air Products Company, New York

A DEMONSTRATION of the possibilities of oxy-acetylene welding in the fabrication of structural steel is afforded by a series of tests conducted at the Buffalo shops of the Linde Air Products Company, on some oxy-acetylene welded steel roof trusses. These

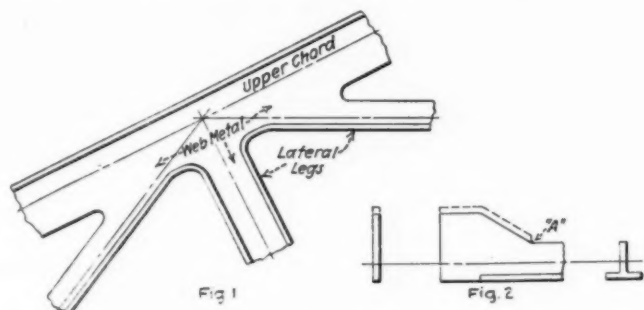


Fig. 1 Shows an Ideal Joint for Structural Shapes—Fig. 2 is a Study of a Joint Between a Shape and a Gusset Plate

tests were preceded by extended studies of this problem made by this company's Process Development department. A practical and sound method for fabricating structural steel by oxy-acetylene welding was sought and interesting and constructive results have been obtained.

For the past three or four years the Process Service department has witnessed the construction of and been confronted with numerous calls in connection with the welded fabrication and repair of highway bridges, foot bridges, tank towers and many other minor structures. However, sound engineering principles were often disregarded, in fact, engineering analysis was frequently lacking and the results obtained, while commendable, varied greatly in detail and could not be satisfactorily interpreted from a rational standpoint. In consequence, it was decided to study structural welding and to carry out such experimental work as seemed necessary.

Initial studies produced what has been termed the

* Abstracted from a report prepared by Mr. Moss.

"Insert Plate Joint." It was developed while trying to place web metal concentrically around center lines in a theoretical diagram and by adding long steel rectangles on either side of this web metal to obtain sufficient area and rigidity for a practical structure. Angles, tees, and tubular sections were tried with this idea as a basis for joint design. For each shape an elementary truss design was studied, thus determining the style of the joints that must be developed to complete a truss structure.

The next and obvious problem consisted of transferring the full strength of members having lateral flanges or outstanding legs into the web plate or into a

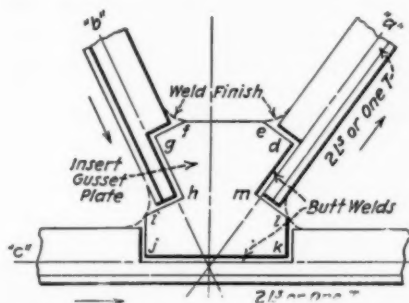


Fig. 3—Typical Insert Plate Joint for Angle Iron Sections

single flat plate somewhat as shown in Fig. 2. A typical application as used in this series of tests is illustrated in Fig. 3.

It will be observed that a portion of the legs of members a, b, and c, has been removed. An insert plate, fashioned as shown d, e, f, g. . . placed in the planes of the longitudinal legs of the tee shaped members a, b, and c, supplies the necessary metal for the transfer of stress at the joint. The union of these several parts was accomplished by oxy-acetylene butt-welding where metal joined metal, the result being a homogeneous plane of metal transferring the applied forces by means of welds in tension and shear in members a and c, and in com-

Table 1. Make-up of the Test Trusses
(dimensions are all in inches)

	Top Chords	Bottom Chords	Main Diagonals	Main Struts	Sub Diagonals	Sub Struts
Case 1 welded	2 angles 3 x 2½ x ¼	2 angles 2 x 2 x ¼	2 angles 1½ x 1½ x ¼	2 tees 3 x 2½ x 5/16	2 angles 1½ x 1½ x ¼	2 angles 1½ x 1½ x ¼
Case 2 riveted	same	same	2 angles 2 x 2 x ¼	2 angles 2½ x 2 x ¼	1 angle 2 x 2 x ¼	1 angle 2 x 2 x ¼
Case 3 welded	same	same	same	same	same	same
Case 4 welded	same	same	2 angles 1½ x 1½ x ¼	same	2 angles 1½ x 1½ x ¼	2 angles 1½ x 1½ x ¼
Case 5 welded	3-in. pipe	2½-in. pipe	2-in. pipe	2½-in. pipe	1½-in. pipe	1½-in. pipe

Note—Gusset plates consisted of two ¼-in. plates in Case 1 and Case 3, and of a single ¼-in. plate in Case 2 and Case 4. The top chord angles of the welded trusses were placed back to back while in the riveted truss they were separated ¼-in. to 5/16 in. The pipe used in Case 5 was standard black pipe.

pression and shear in member b. Briefly such a design provides several advantages:

- 1st—Center of gravity lines of the members converge exactly at the true intersection points.
- 2nd—All principal welds are placed at or very near to the center of gravity of the member joined.
- 3rd—The major portion of the welds function in shear.
- 4th—All metal is joined with butt welds.
- 5th—All metal joined may be placed symmetrically in regard to the axial plane of the main structure.
- 6th—A non-rigid weld at the terminal of each member.
- 7th—Easy means for rounding out the weld ends or filletting the finish (as shown by the dotted lines in Fig. 3) thus avoiding abrupt angles.

Preliminary Work Shows Tensile

Strength of Welded Joint

A series of tests was conducted in the Carbide and Carbon Research Laboratories in Long Island City, on typical joints. Specimens were set up in correct fixtures in a 100,000-lb. Olsen tensile machine and pulled to rupture. In each the base metal of the adjoining member failed at some distance from the tension weld in the insert plate—an evidence of the strength of this type of joint. The unit tensile strength developed in these tests averaged 56,000 to 57,000 lb. per sq. in., or approximately the average maximum strength of rolled shapes. There was no evidence of distress in the welds at the time of failure of these specimens. The material used was standard angles bought from a local warehouse. The filler rod or deposited metal was Oxweld No. 1 high test rod, the quality of which develops the full strength of the base metal across a properly made butt-weld in mild steel. These results proved that by using proper filler rod material the strength of the outstanding legs of a member could be transferred into the insert plate.

Having as a background the preliminary insert plate design and the results of the specimen tests, complete designs were prepared for a series of one-quarter pitch, gable roof trusses of 40-ft. span, spaced 15 ft. center to center, to withstand a load of 40 lb. per sq. ft. of horizontal projection, or 3,000 lb. at each of seven panel points not including those immediately above the end supports.

Five trusses were tested, all of them being built of

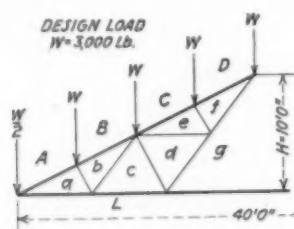


Fig. 4—Half Outline Elevation of the Test Trusses

structural steel angles except Case 5 which was made of steel tubes. The makeup of these trusses is given in Table 1. The yield point of the steel used in the trusses made of angles averaged 40,000 lb. per sq. in.

The welders selected for the work were required to make welds in structural steel developing a minimum tensile strength of 50,000 lb. per sq. in. in a standard American Welding Society tensile coupons. The actual results obtained from these coupons using high test filler rod averaged 60,000 lb. per sq. in.

The Test Structure

Figure 5 shows a cross section of the testing rig. The hanging platforms for loading, the purlin construction

for holding panel points laterally and the design of the 8-in. by 8-in. timber gantries is clearly shown. The trusses under test were supported at either end by concrete piers, one providing a rigid anchorage, the other a set of rollers and a rocker casting placed between bearing plates. Approximately 40 tons of pig iron was accurately weighed for this test, each pig having its correct weight painted on in white numerals.

The trusses after being erected were carefully lined up by means of plumb-bobs suspended from a true line above. The purlins secured the top chords laterally but

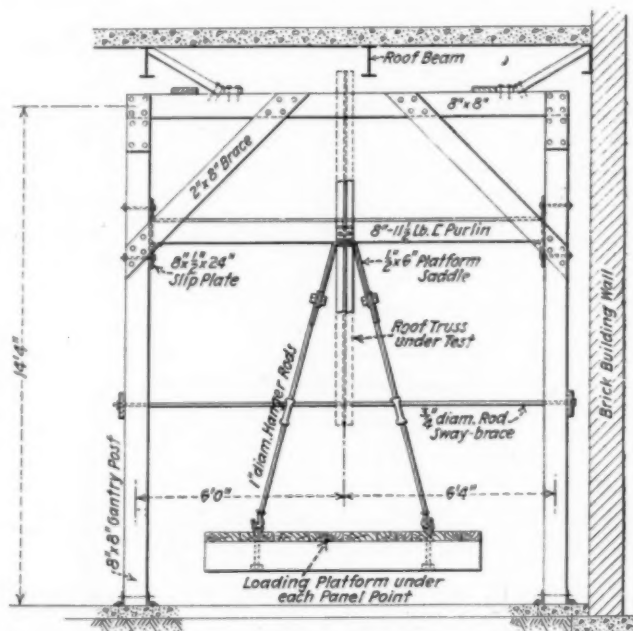


Fig. 5—Typical Section Through the Testing Rig, Showing the Method of Loading

freedom to move in a vertical plane was insured by means of slip plates on the gantries. Two $\frac{3}{4}$ -in. round adjustable rods secured the lower chord against lateral movement. Thus deflection was measured against a tightly drawn steel wire secured to the gusset plates at either end of the truss. Uniform loading was obtained by adding a pig consecutively to each platform. Deflection readings and stress investigations were taken at panel loads of 3,000 lb., 6,000 lb., 9,000 lb. and 10,000 lb.

Above 10,000 lb. the load was increased 70 lb. at a time (the average weight of one pig) up to point of failure. Strain gage readings were taken on both sides of each member of each truss for the purpose of determining the effect of residual welding stress in such a structure, and to study its elastic action.

Summary of Load Tests

In each case failure of the trusses was the result of typical column failures of the upper chord between panel points. Three cases failed at the rigid end of the truss and two failed at the free or movable end. At no time throughout these tests was there any indication of joint distress. Approaching failure, with the passing of the maximum strength of the upper chord, was evidenced by Luders lines appearing in a cement coating applied to the metal. In the riveted and tubular trusses these distress signals appeared before the 9,000 lb. panel load was reached.

The loads and factors of safety developed in each case, the weight of each truss and the recorded de-

Deflections up to the 9,000 lb. panel load are given in Table 2.

Table 2. Summary of Results

Mark Kind of Truss	Comparable Weight of Trusses	Max. Panel Load	Factors of Safety Developed	Average Deflection		
				3,000	6,000	9,000
Case 1. Preliminary truss, welded.....	1,199 lb.	10,285 lb.	3.42	.28	.62	1.03
Case 2. Riveted truss.....	1,161 lb.	9,000 lb.	3.00	.29	.635	—
Case 3. Direct competitive, welded..	1,079 lb.	10,318 lb.	3.44	.25	.585	1.095
Case 4. Symmetrical truss, welded....	1,079 lb.	10,043 lb.	3.34	.335	.695	1.13
Case 5. Tubular truss, welded.....	916 lb.	8,877 lb.	2.96	.285	.655	—

The results of these tests, which afforded splendid opportunity for observing the habits of welded construction under conditions of extreme stress, point toward a saving in metal in all members below the top chord. Furthermore, the theoretical amount of metal can probably be used in the secondary web members, now generally made heavier than necessary to take the stresses, without causing difficulties as far as welded fabrication is concerned. However, for uniformity of the welded joint a minimum thickness of $\frac{1}{4}$ in. seems to be desirable for this type of structure.

Conclusions

It is apparent that the insert plate joint is a step in the right direction towards the solution of the problem of joining structural steel by oxy-acetylene welding. This method of joining is sound.

The summary in Table 2 shows a rigidity in favor of welding of approximately 15 per cent. This may be explained in part on the assumption that the "fixation" of column members is better than where the end connection is riveted.

Material savings in the weight of steel necessary for a structure of this type can be made as compared with the present methods of fabrication.

Welding by this method does not inject negative factors of strength in a completed truss structure, nor in the base metal adjacent to the welds.

The shop work proved to be simple and was attended with but few minor difficulties which were easily remedied. Good alignment of members was maintained by following recognized welding practices. In doing work of this nature, rigid adherence to the following procedure control is recommended:

- a—Selection of workmen.
- b—Purchase of first-class materials.
- c—Provision of good shop conditions.
- d—Correct engineering design for welding.
- e—Adequate supervision and management.
- f—Inspection and proof test.

By observing this code, progress in the field of welded fabrication of structural steel can be expected. Caution, and by all means engineering control, in this class of work is imperative. Much remains to be done along these lines from an engineering and proof testing standpoint before the welding of structural steel will enjoy the confidence of the progressive structural engineer and fabricator. The welding engineer, however, finds much encouragement when witnessing results in practice that conform so closely to his theoretical predictions.

IN MAKING CHANGE for patrons in the purchase of tickets and in Baltimore & Ohio dining cars, ticket agents and stewards are giving out "Stone Mountain Memorial" half-dollars at their face value, as souvenirs. These special coins were purchased from the Stone Mountain Memorial Association, at one dollar apiece, by the Baltimore & Ohio for distribution among its patrons.

I. C. Train Control Approved

THE Interstate Commerce Commission has issued its decision, dated August 7, approving, without qualification, the automatic train stop system installed on the Illinois Central between Champaign, Ill., and Branch Junction, near Centralia, 122 miles, double track; number of locomotives equipped, 56. This system is the continuous induction type, with forestalling feature and color-light cab signals, of the Union Switch & Signal Company.

As in the installation on the same road in Iowa, which was described in the *Railway Age* of August 14, there are no visual roadside signals between stations, the automatic blocking being effected wholly by the cab signals and automatic stops. The total cost of the Illinois installation, as reported by the railroad company, was \$295,533.35, stated as follows:

ROADWAY EQUIPMENT	
Number of road miles equipped.....	121.8
Number of track miles equipped.....	243.6
Total cost of roadway equipment of train control installation, less power lines and power apparatus if any, and less signals or cost of change in existing signal system; less salvage.....	\$109,222.01
Total cost of power lines and power apparatus, if any, less salvage.....	45,289.08
Total cost of signal system installed in connection with train control; less salvage.....	0
Total cost of changes in existing signal system made necessary by train control; less salvage.....	0
Total all other roadway equipment costs, if any.....	3,368.66
Total cost of roadway installation.....	157,879.75
LOCOMOTIVE EQUIPMENT	
Number of locomotives equipped.....	56
Cost per locomotive equipped.....	\$2,458.10
Total cost locomotive equipment installed.....	137,653.60
Total Cost.....	\$295,533.35
Labor, material and device costs are included in each item.	

There are nine interlocked grade crossings within this territory. The automatic train control was completed on January 21 last and inspection was completed on May 14. Electric current is supplied at Champaign, Tuscola, Mattoon, Effingham and Central City, and emergency supplies are provided at Tuscola, Mattoon, Effingham and Kimmunity. At each interlocking there is a short section of track not energized, where the lines of other railroads are crossed. At all interlockings approach and detector locking is provided. Block locations are designated by numbers painted on the roadside cases which contain the batteries and other electric equipment.

Following the usual description of apparatus and functions, the report says that "As a result of this inspection and test, it was found that the installation meets the requirements of our specifications and order * * * and, therefore, is approved."

Following this are five requirements which the railroad company is expected to comply with, as follows:

1—Reports, records, etc., to be kept with care and thoroughness.

2—Reports of failures, etc., should be made in detail.

3—Certain switchbox connections, which were found unsatisfactory, must, if depended upon, be so constructed, installed, inspected and maintained as to conform to the best engineering practice, to the end that possibility of a false-clear failure may be reduced to a minimum. Should the present arrangement be found unsatisfactory, other means of protection must be applied. 4—False-clear failures occurred on May 3 at Tolono; this situation must be watched and, should further trouble develops adequate means for overcoming the difficulty must be promptly employed.

5—It is suggested that it may be found desirable to provide additional fouling protection at some or all of the industry and house tracks where derails are used without being pipe connected or provided with switch boxes. This report is by Commissioners Esch and Taylor, Mr. McManamy, the other member of Division 1, having taken no part in the disposition of the case.

I. C. C. Continues Motor Bus Investigation

I. C. C. hearings completed at Portland, Ore., and San Francisco—Wide divergence of opinion

A WIDE diversity of opinions regarding the desirability of legislation for motor vehicles was expressed shortly before the Interstate Commerce Commission's hearing closed before Commissioner Aitchison and Examiner Flynn at Portland, Ore., on August 9, preliminary to its reopening at San Francisco on August 12. At the latter point, on the other hand, the testimony of representatives of truck owners' associations and state commissions showed that there are many general hauling carriers that are not under the jurisdiction of the railroad commission of California and it was generally felt that there should be legislation governing buses.

Members of every group that appeared before the hearing at Portland had ideas concerning legislation which were different from those of any other group. E. A. Collier, engineer for the Oregon state highway department, pleaded for future state control of highways and traffic, and asked that the state highway department be allowed to tax interstate as well as intrastate trucks in addition to regulating traffic over the state roads. W. H. Somers, traffic manager of the Portland-Seattle Stage Company, said that if stages should cease to operate in order to conserve the railroad investments, not more than 20 per cent of the stage business would revert to the railroads. H. H. Cleland, an attorney directing the testimony of Washington bus operators and associations, asked the commissioner to inspect the cost and sources of cost of Washington state highways, and to note the amounts paid in road taxes by the railroads and motor vehicles. Commissioner Aitchison ordered that this information be presented at the San Francisco hearing.

Roy A. Klein, state highway engineer for Oregon, presented maps showing the roads of Oregon over which commercial freight trucks and stages operate, pointing out the lines which compete with railroads and those which do not. The only state control, he said, was over logging trucks. Oscar W. Horne, manager of the Auto Freight Terminal Association at Portland, stated that 79 lines, operating 175 trucks, work out of his terminal. These do much interstate business and move goods as far as 330 miles between fixed terminals and on regular schedules. When asked whether he preferred state or federal legislation, he said that under existing conditions the state can give the best regulation. George W. DeLape, manager of the Interstate Coach Company, presented exhibits showing the growth on his line from 4,493 passengers in 1922 to 10,930 passengers in 1925 and 7,326 for the first seven months of 1926.

At the San Francisco hearing, H. W. Hobbs, attorney for the Southern Pacific, representing the carriers, stated that they would introduce no oral testimony unless the Commission desired it as the questionnaires sent out by the commission are answered so fully that oral evidence would be merely repetition. Motor bus operators and the electric lines did not testify at San Francisco, but presented evidence at Los Angeles on August 17.

W. J. Hanford, an examiner of the state railroad

commission in charge of the auto, truck and stage department for the commission, stated that the state auto truck and stage act as it now exists does not cover all truck transportation on the highways and does not cover interstate carriers who do no local business in the state. "There are many general hauling carriers," he said, "not under the jurisdiction of the commission. A large proportion of hauling in the state is done by carriers not under the jurisdiction of the railroad commission. The number exempt from commission control by the Frost decision is very large. Because a man can change his character overnight and become a contract carrier, the courts will have to determine whether they are really contract or common carriers."

"The California act does not regulate operators inside a city exclusively. A good many so operate generally, but occasionally go outside. There is a certain amount of interstate business to and from the ports of the state which may or may not be intrastate business within the meaning of the phrase. The contention has been raised by Los Angeles truck men that trucking between Los Angeles and the Harbor is interstate business, but the railroad commission has ruled negatively."

When asked whether state regulatory laws are sufficient to control interstate truck hauling only, Mr. Hanford said that he knew of very little interstate commerce by trucks between California and other states. "I see one insurmountable objection," he said, "to federal regulation of carriers, and I presume Congress will pass legislation regulating motor carriers and put the enforcement up to the Interstate Commerce Commission. The passenger carriers will want to participate with the rail carriers in through rates. A short line in California now comes under the Interstate Commerce Commission by the filing of through rates. Under such conditions, it would be desirable for the railroads to join with the trucks and buses. If the railroads don't participate in through rates they will lose business. But if all the trucks and buses, by virtue of filing rates, come under the jurisdiction of the Interstate Commerce Commission, regulatory enforcement will become too intricate a process to be conducted from Washington, and it will take too many men and too much money."

Mr. Hanford was asked the extent to which the trucks compete with the railways and express service in the following particulars: (1) In pickup and delivery; (2) in freedom of packing restrictions which the trucks enjoy in the handling of household furniture and other commodities; (3) in the agency service rendered by the truck driver or operator; and (4) in the length of the haul.

He replied, "In the 100-mile haul by an effective motor truck service the railroads cannot compete. Beyond that it is always the railroad. Within that distance the railroad is competitive to some extent, but an efficient truckman will get the business in spite of the railroads. All elements are in his favor. The trucks and buses do develop business which might not be carried by the railroads, but this development is as yet not very efficient,

as the operators prefer to get the money and the business in the known fields right at hand. In response to the second question, the answer is that the railroads do not compete. In the agency service of trucks and buses, the railroads also do not compete. The agency service is really an auxiliary service. When developed, the motor carriers will make a separate and extra charge for agency service, because this is not transportation. The express companies have done a purchasing and c.o.d. business for patrons for some time. The bulk of the business of contract truck carriers is one-way haul. They will take anything on the back haul and this causes trouble with certified carriers because the back haul is all velvet."

Nevada Exercises No Control

Frank Warren, secretary of the Public Service Commission of Nevada, stated that the Nevada Commission does not deal with common carriers in the motor transport field. "We have only a few, who do mostly mining camp work. There is a pickup and delivery and agency service by some of the truck lines. Trucks have freedom from furniture packing and other packing restrictions. The great bulk of transportation by motor vehicles in Nevada is auxiliary or supplemental to the railroads, rather than in competition. Nevada is a state of large districts and small population, that do not justify a large program of new railroad construction. The trucks therefore are indispensable to many sections."

George H. Baker, attorney for the California Interurban Freight Carriers' Association of San Francisco, said that the value of the truck over the railroad is its flexibility of service. "Truck service is divided into three parts: (a) Hauls of general merchandise and freight over regular routes; (b) Commodities hauled by irregular and on-call carriers, and (c) General drayage business into and out of the cities of the country. The serious question is that of competition with the railroads. Out of San Francisco many milk and cream retailers haul their entire supplies by truck over a distance of 100 miles. As a matter of fact, very little milk is not brought by truck. Time is an element which impels the dealer to use trucks. In addition, the truck can afford to take smaller units than can the railroads."

"The truck is also preferred in handling eggs and poultry products, and because of its superior service, it is preferred in fruit transportation. The owner of a berry patch can pick until dark, then put his berries out, and the truck has them on the city market early in the morning. Railroads cannot do that."

"Trucks can operate more than 100 miles in competition with the railroads under certain conditions and still make money. Canned goods and dried fruits are hauled from down the state to the vicinity of San Francisco, a distance of 250 miles, steadily and profitably by truck. Cotton is hauled by truck profitably from San Joaquin and Imperial valleys to Los Angeles harbor, but the bad feature of this is that such competition forces a reduction of the railroad freight rates."

"The longest ordinary haul which can be made profitably is 100 to 125 miles. The average truck haul is not 50 miles. One of the exceptions is that fruit and vegetables can be carried on pneumatic-tired trucks capable of making a sustained speed of 35 miles an hour."

"Truck rates in California are generally 150 per cent of rail freight rates, but they are under express rates by the same percentage. I have found no reasonable truck man opposed to regulation. It is unjust to regulate a small portion of the business and let a large portion go free."

George Harm, president of the San Joaquin Valley Franchise Carriers' Association, stated that federal regu-

lation would not benefit the carrier or the public. He handles interstate shipments and would lose money if the adoption of joint rates with the railroads forced him to wait indefinitely for his share of the freight on the incoming packages he handled. He stated that his total investment is \$75,000 in one line and the total revenue last year was \$35,000. The other line represents an investment of \$25,000 and the gross income was \$10,000. He stated that his rates are higher than the rail rates on general merchandise, by about 10 per cent.

L. N. Anderson, an interstate carrier, in California and Nevada, testified that he operated a passenger and freight trucking business, carried U. S. mail between Minden, Nev., and Mono Lake, Cal., a distance of 170 miles, and that 90 per cent of his business is interstate. He felt that the interstate business needs regulating, as neither state has jurisdiction over the entire length of his route.

J. S. Ginocchio, a truck line owner at Gardnerville, Nev., testified that he operates a truck line from Gardnerville to Reno, 47 miles, and from Reno to Westwood, 113 miles. He is in competition with the Nevada & Truckee on one run and with the Southern Pacific for part of the distance on the other. On the Reno-Susanville stretch, where he competes with the railroad, his rates are five cents per 100 lb. higher than the railroad rates, while on the Reno-Minden route the flat rate is 2½ cents per 100 lb. higher than the railroad. This, however, is a classification and not a commodity rate, as he handles merchandise from the warehouse to the store door and from the farm to the store.

California Farmers Represented

Edson Abel, an attorney for the California Farm Bureau Federation, outlined the part the motor trucks have played in the movement of fresh fruits and vegetables in California, saying that the excess transportation furnished by the so-called bootleggers and wildcatters in the trucking business make it possible to handle these crops. The federation is opposed to any operator, or group of operators, who attempt to control the situation by eliminating or crippling the trucks of the Class B group. "It has been said," he testified, "that certified carriers could handle the fruit and vegetable movements, but there are not enough of them to do it now. If an emergency in the way of a quick-ripening crop arose, and there were not enough certified carriers, and if all carriers were absolutely controlled so that certificates were necessary before they could operate, these certificates could not be granted in time to move the crops which were jeopardized. We oppose certificates of public convenience and necessity for Class B carriers, because first, it would prevent the economical use of available equipment; second, the movement of perishable agricultural products requires a flexible type of service, and the needed degree of flexibility cannot be secured under a system of certificates. The records show that certified carriers hauled 1,174,814 tons during 1925, while California produced 12,000,000 tons of field crops, fruit and vegetables, all of which were transported to some extent by truck, and 50 per cent of which is seasonable and must be used when harvested."

W. W. Van Valkenburg, manager of the United Milk Company, San Francisco, testified that his company was forced to use trucks because it was unable to get refrigeration for shipments from the railroads. In 1919 his company was paying the single can rate on carload lots and tried to get a reduction, which was refused. At the present time his company ships milk in glass-lined tank trucks and trailers, each of which holds 1,290 gal. Each truck and trailer makes a trip in one day from

Salinas to the distributing plant at San Francisco, a distance of 135 miles, and the refrigeration is so perfect that in 24 hours there is a rise of only two degrees in temperature.

E. A. McCrary, assistant tax commissioner of the Northern Pacific at Spokane, Wash., submitted a table showing the taxes levied and collected the past 10 years in the state of Washington for highway construction and upkeep, and the proportion paid by the railroads. The data submitted in the exhibit is a completion of the data introduced by the railroads at the Portland hearing. The figures are from the official publications of the state. During the 10-year period, 1916 to 1926, property taxes to the amount of \$97,000,000 were levied for public highways, and of this sum \$10,665,000 was levied on the property of the railroads. They were taxed more than \$1,000,000 a year for highways. This does not include assessments for street improvements within the cities which the railroads serve, and which were also paid. Motor truck and bus receipts are considered as additional revenue. That the property tax is the main source of income for construction and maintenance of highways was shown by the exhibit.

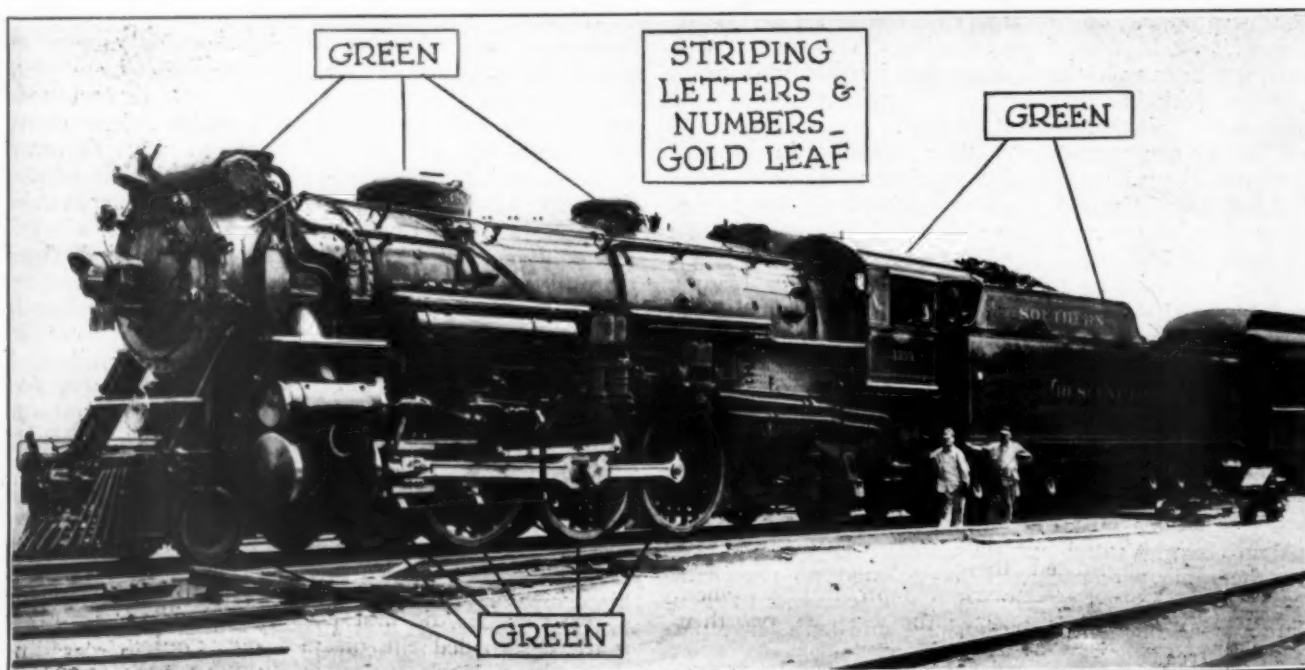
Objection was made by J. F. Shaughnessy, chairman of the public utilities commission of Nevada, as to the definition of motor truck and bus receipts as additional revenue. He brought out the fact that the total amount paid by motor transportation, as shown by the report, in addition to the payment of property tax, was \$34,000,000, as compared to the railroads' \$10,665,000. Mr. Shaughnessy called attention to the compilation made by the National Automobile Chamber of Commerce for 1926, and pointed out that the automobile industry paid in taxes in 1925, the sum of \$666,994,345 as compared to \$360,000,000 in round numbers, paid by the railroads. Of the sum paid by the motor industry, \$145,000,000 was in federal taxes, \$506,648,000 in state registration fees, and \$15,000,000 in municipal taxes. These are from the records of the United States Internal Revenue Department, the U. S. Bureau of Public Roads, and the National Automobile Chamber of Commerce, he said.

The hearing at San Francisco was concluded on August 13. Testimony of various shippers was offered by Seth Mann, traffic manager San Francisco Chamber of Commerce. This presentation was made in an endeavor to give a picture of the use of motor transport in the distribution and handling of shippers' products. Shippers testified that generally they use their own trucks or those of contract carriers. Most of the shippers did not commit themselves on regulation.

R. W. Filler, general manager of the Hawaiian Consolidated Railway Company, Ltd., testified that motor bus and truck competition has seriously affected his company's revenues. He said there is no territorial regulation nor is the company able to get it. He is in favor of federal regulation.

The hearing closed at noon on August 13, the examiner announcing that briefs might be filed by any person or groups of persons up to October 10. The railroads have until September 1 to file questionnaires. The Southern Pacific, Atchison, Topeka & Santa Fe and Western Pacific will give copies of their questionnaires, as answered, to the State Railroad Commissions in the states through which they operate.

THE GREAT NORTHERN has applied to the Interstate Commerce Commission for an order requiring the Northern Pacific to grant it the use of a short piece of N. P. track in the city of Seattle, Wash., which connects the Great Northern with certain terminal tracks jointly owned by the two companies. The so-called "joint tracks" were constructed by the Northern Pacific under a city ordinance which required it to share them with other roads. The Great Northern has paid for a half interest therein, according to the application, and desires to operate its own engines and cars upon the joint tracks for the purpose of giving direct service to industries located thereon "but has no means presently available for reaching said tracks." The Northern Pacific, the application says, has refused to sell any interest in its connecting track to the Great Northern and has refused to permit the use of the track by the Great Northern's engines.



One of the Southern's New Passenger Locomotives, Showing Color Scheme

Northern Pacific Junks Engines Cheaply

Scrap handling facilities of this road make quick work of 16 locomotives and produces economies

THE Northern Pacific has found a better way to junk its retired locomotives. It is to send them to the reclamation plant and leave it to the supply department to do the rest. It tried this recently and the experiment was a success. Under the arrangement, 16 locomotives and tenders, weighing 1,174 tons in the aggregate, were junked ready for market at a total cost of

carried out at Brainerd, Minn., where the company operates a modern scrap handling and reclamation plant built in 1924 for handling all miscellaneous scrap for the lines east of the Rockies. The equipment at this point includes an outdoor traveling gantry crane having a 75-ft. span between runways, a travel of 400 ft., and a hoisting capacity of 15 tons for operating a hook or



Some of the Steps in Junking the Old Engines

(1) Engine 427, typical of those junked. (2) Removing the cab. (3) Removing the top of the boiler with a magnet. (4) The tubes come out in one operation. (5) The firebox is removed intact. (6) Ready to cut the axles from the wheels.

approximately 92 cents a ton, or about half the former cost. Moreover, the shops escaped the interference of dismantling operations with regular repair work, the necessity of taking about 60 cars from service to haul scrap was eliminated, there were about 500 tons less scrap to handle in the marketing process, and when the work was completed much of the scrap was worth more on the market.

The story of the junking of these 16 old engines is largely that of doing the work with experienced junkers, magnets and the oxy-acetylene flame. It was principally

magnet. There are also provisions at this plant for the use of oxy-acetylene for reducing scrap to marketable sizes and grades and a full-time organization is maintained whose attention is concentrated on the problem of scrap handling.

It was decided to do the work at Brainerd for several reasons. In the first place, the facilities already built there provided the means of carrying out the actual wrecking work under conditions that could only be duplicated elsewhere by special arrangements for labor, power and supervision. Concentration at Brainerd also

assured the economies of repetition of work, on the principle that when a gang has completed one of several jobs of the same kind, it is prepared to do the next job cheaper. Moreover, the assignment of all the work here, it was seen, would dispense with that handling of scrap before sale which would result from the dismantling of the power at outside points and its shipment thence to the scrap dock for final sorting. This point was also considered,—that the highest efficiency in junking requires in addition to low cost of handling a plan of cutting and dismantling that is guided by considerations of sale rather than the mere consideration of convenience in loading and disposal. It was thus highly desirable in handling the 16 locomotives to reduce them uniformly into carefully considered scrap classifications. In contemplating the junking process, moreover, the supply department was interested in salvaging such material as could be used again and also in avoiding the return to stock of any obsolete material or of an excess of material that might become obsolete before it was used again.

Small Force Required

The photographs illustrate the principal steps in the junking operations, which involved only two men except for the assistance given by the crane man in handling the heavy parts and in loading the dismantled material for shipment or for distribution elsewhere. The first step in the process was to remove all the cab mountings and fittings together with the bell, whistle, generator and headlight which were then placed back in stock if found serviceable. In the next operation, the oxy-acetylene operator and his helper, using sledges and a cutting torch, where necessary, devoted their attention to breaking various bolts and removing the small castings, the front end door and ring, smokestack, dome cover, etc. When this work had progressed far enough for the purpose the gantry crane removed the cab which was placed in stock if found of standard design and in good repair. These operations were followed by the removal of the jacket from the boiler when the asbestos lagging was recovered and returned to the store house. This prepared the way for junking the boiler which was cut in place by means of the oxy-acetylene torch. The top of the boiler was first removed, after which the front flue sheet was cut away from the boiler and the beads severed from the back flue sheet. This made it possible to remove all of the flues at one lift of the crane as illustrated.

After removing the flues, the cutting operation was continued until nothing was left of the boiler but the firebox and crown sheets which were then removed from the frame and loaded without further dismantling since it was found more economical to sell this as uncut boilers than to subject it to further dismemberment. When an engine was dismantled down to the drivers the brasses were removed from the driving boxes by means of sledges, providing the boxes were of cast iron while if the journal boxes were steel a cut was made with the torch to facilitate the recovery of the brass. The final junking operation was to cut the axles close to the hub of the wheel centers, whereupon the tires were cut from the wheels by means of the torch, except where the tires were found capable of further service, in which case they were expanded with a tire torch and removed from the wheel centers by sledges.

Low Cost

The total cost of junking the 16 locomotives, including the sorting for shipment, crane service and such messenger service as was required to bring the engines

in from the outside points was \$1,087, which was made up as follows:

Labor	\$527
Material	479
Crane service	29
Messenger service	52

The total value of second-hand parts which were retained for service is estimated at \$2,900 for the 16 engines which is small for the reason that only parts standard to modern power were withheld from the scrapping.

Freight Car Loading

WASHINGTON, D. C.

Revenue freight car loading in the week ended August 7 totaled 1,083,199 cars, a decline of 19,391 cars from the preceding week, due to smaller loadings of coal principally, but also to a decrease in the loadings of grain, livestock, forest products and miscellaneous freight. The total as compared with the corresponding week of last year was 30,681 cars larger and an increase of 141,792 cars over the same week in 1924. It was the eleventh consecutive week this year that car loadings have exceeded the million mark. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING—WEEK ENDED AUGUST 7, 1926

Districts	1926	1925	1924
Eastern	255,042	247,510	217,680
Allegheny	217,849	213,547	192,205
Pocahontas	57,909	56,803	43,709
Southern	149,204	146,080	131,639
Northwestern	166,167	157,628	137,062
Central Western	158,087	152,918	151,717
Southwestern	78,941	78,032	67,395
Total Western	403,195	388,578	356,174
Total all roads	1,083,199	1,052,518	941,407
Commodities			
Grain and grain products	59,999	53,562	57,448
Live stock	25,387	28,786	28,918
Coal	183,088	189,989	149,786
Coke	11,607	9,581	6,877
Forest products	69,582	71,502	67,561
Ore	75,572	62,798	52,728
Mdse., l. c. l.	263,893	258,754	239,719
Miscellaneous	394,071	377,546	338,370
July 31	1,102,590	1,045,626	945,613
July 24	1,085,450	1,033,519	926,309
July 17	1,083,626	1,012,854	930,713
July 10	900,977	986,893	909,983
Cumulative total 32 weeks	31,364,930	30,326,099	28,597,081

The freight car surplus on August 8 was 179,771, a decrease of 19,302 cars compared with July 31. The surplus included 45,836 coal cars, 97,789 box cars, 19,050 stock cars and 11,178 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended August 7 totalled 56,657 cars, a decrease from the previous week of 4,789 cars, the decline being due to the civic holidays which seriously affected loading. Compared with the same week last year there was an increase of 8,334 cars.

Commodities	Total for Canada			Cumulative Totals to date	
	August 7 1926	July 31 1926	August 8 1925	1926	1925
Grain and grain products	3,648	3,794	3,278	204,006	175,834
Live Stock	2,183	2,302	2,505	61,851	67,901
Coal	6,605	6,715	2,042	157,050	97,382
Coke	256	237	209	11,557	8,441
Lumber	4,045	4,267	4,495	112,745	109,700
Pulpwood	2,244	2,695	2,110	91,833	89,289
Pulp and Paper	2,150	2,033	1,844	76,685	63,588
Other forest products	2,260	2,615	2,457	100,005	90,792
Ore	1,817	2,230	1,602	50,181	41,491
Merchandise l. c. l.	16,402	16,807	14,238	495,240	466,309
Miscellaneous	15,047	17,751	13,543	421,229	366,805
Total cars loaded	56,657	61,446	48,323	1,782,382	1,577,532
Total cars received from connections	36,167	37,365	32,917	1,149,389	1,025,786

Power Utilization and Repair Costs

The cost of running repairs per locomotive mile decreases materially as monthly mileage increases

By Lawrence Richardson

Contracting Engineer, Dwight P. Robinson & Company, Inc.

INCREASED mileage and better utilization of locomotives has become a set standard in the economical operation of motive power. The report of the Committee on Locomotive Utilization calls for more than passing attention. One of the outstanding facts is the reported annual saving on four roads alone of over \$1,000,000.

To bring out the effect of increased mileage on loco-

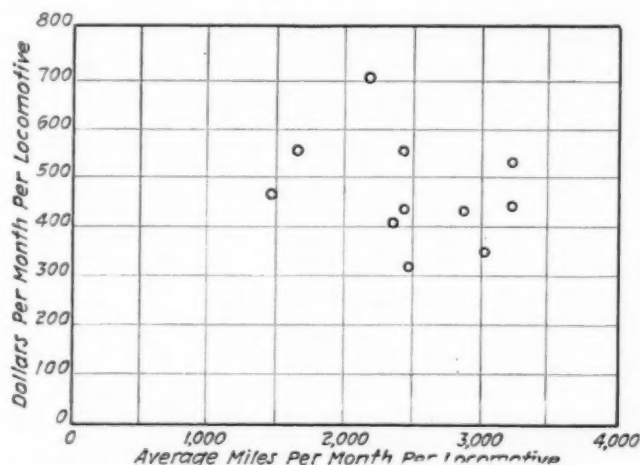


Fig. 1—Relation of Monthly Expenditures for Running Repairs to Average Miles per Month—Ten-wheel Suburban Locomotives

motive repairs, the individual costs of a number of locomotives were obtained. A sufficient length of time was taken in order to get average conditions, mileage being stopped or started with class repairs.

To show the effect of mileage on costs in a definite

TABLE I—MILEAGE AND RUNNING REPAIR COSTS OF 10-WHEEL SUBURBAN PASSENGER LOCOMOTIVES

Locomotive No.	No. months	Total mileage	Total cost	Mileage per month	Cost per month	Cost per mile
50	14	20,519	\$6,471	1,465	\$462	31.5c
51	14	44,981	6,170	3,212	440	13.7
52	14	23,229	7,796	1,659	556	33.5
53	14	34,056	6,069	2,432	433	17.8
54	14	33,086	5,688	2,363	406	17.2
55	12	36,451	4,195	3,037	349	11.5
56	12	38,579	6,343	3,214	528	16.4
57	10	21,871	7,113	2,187	711	32.5
58	11	26,562	6,104	2,414	554	22.9
59	14	34,718	4,476	2,479	319	12.8
60	14	40,310	5,993	2,879	428	14.8

way, it was necessary to eliminate all of the other factors. This was done by taking a number of locomotives of the same class and age, operating on the same railroad and repaired in the same way. Even the variable that sometimes comes in selection was eliminated in that the cost of every locomotive studied was plotted. Table I shows individual costs for 11, 10-wheel suburban locomotives operating out of the same home enginehouse.

The rated tractive force was 28,600 lb. In this set-up, all of the variables were eliminated, except that of average mileage. One made only 1,465 miles per month, while others exceeded 3,200 miles per month. The total mileage was sufficient to give good averages. The studies were confined to running repairs, as the economy

TABLE II—MILEAGE AND RUNNING REPAIR COSTS OF PACIFIC TYPE PASSENGER LOCOMOTIVES, SOME IN DIVISIONAL AND SOME IN LONG RUN SERVICE

Locomotive No.	No. months	Total mileage	Total cost	Mileage per month	Cost per month	Cost per mile
915	8	41,759	\$12,282	5,219	\$1,535	29.4
916	7	48,532	11,572	6,933	1,653	23.8
917	17	110,226	28,690	6,483	1,687	26.0
918	14	83,134	24,019	5,938	1,715	28.8
919	13	79,979	24,641	6,152	1,895	30.8
920	14	72,574	16,972	5,183	1,212	23.3
921	11	53,675	15,762	4,879	1,432	29.3
922	12	67,367	14,494	5,613	1,207	21.5
923	15	62,964	17,413	4,197	1,160	27.6
924	15	68,920	18,288	4,594	1,219	26.5
925	12	101,555	22,079	8,463	1,839	21.7
926	10	111,480	18,112	11,148	1,811	16.2

of locomotive utilization finds its first expression in running repairs, rather than in classified repairs.

To present the other side of passenger service, the individual costs of 12 Pacific type locomotives in through passenger service were also obtained. These locomotives were built in 1918 and have a rated tractive force

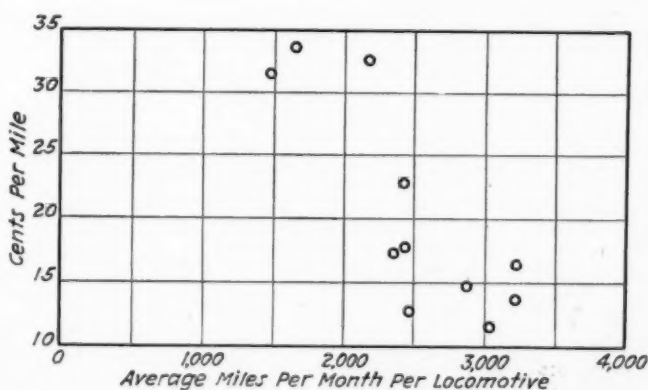


Fig. 2—Relation Between Running Repair Unit Costs and Monthly Mileage—Ten-wheel Suburban Locomotives

of 43,900 lb. The costs are shown in Table II. The first 10 locomotives were in the usual divisional service, making runs of some 130 miles. They averaged from 4,197 to 6,933 miles per month. The last two locomotives were assigned to long run service, making trips of more than 400 miles, over three divisions. No. 925 averaged 8,463 miles per month, while No. 926 averaged 11,148 miles per month. It is interesting to note that none of the other locomotives approach them in average mileage, showing in a marked way the benefit of the time released by the reduction in the number of

terminal handlings. The home terminal serving the suburban locomotives also served these through locomotives. To show the meaning of the figures in a graphical manner, the costs shown in Tables I and II were plotted.

Fig. 1 was drawn to show the average total cost per month plotted against the average mileage per month. The interesting thing shown by this plot is the fact that the total cost is quite independent of the mileage. One would expect to find the lowest total cost on locomotives making low mileages. This is far from the case. The lowest total was made by a locomotive averaging 2,500 miles per month and was only exceeded slightly by another locomotive averaging better than 3,000 miles per month.

To show the facts more clearly, the total money was divided by the total miles and the average cost of running repairs per mile was plotted against average miles per month. The results shown in Fig. 2 are even more striking, the lowest costs being obtained for locomotives averaging 3,000 miles per month.

Were a curve to be drawn through the points, it would have a decided downward tendency, although there would be some question as to its direction with higher mileages. For that reason, only the points are shown. The downward trend of costs with increased mileage is plainly indicated.

Fig. 3 is even more interesting than Fig. 2 in that it shows the effect of long locomotive runs. The costs shown are from Table II (Pacific type passenger locomotives). The effect on average mileage was shown in the table, while the combined effect on costs as well as mileage is more clearly shown in the diagram. The fact should not be overlooked that the costs shown are direct costs. The indirect costs are of equal importance. In the case of locomotive No. 926, not only are the maintenance costs some 7 cents per mile cheaper, but the ownership costs are 6.1 cents less per mile. On an annual basis, the direct saving would be \$9,498, and the indirect saving, \$8,026. The total saving of \$17,524 is worth considerable effort.

The above savings are primarily due to increased mileage. On many roads that have adopted long runs,

additional savings have been effected by reason of a better condition of power and by means of heavier and more thorough periodical repairs, eliminating much so-called repeat work.

Rather than confuse as to the real savings possible, the costs developed in this study have concerned mileage only. The savings due to the other factors are of equal importance and will be treated separately.

No better expression of the whole problem can be

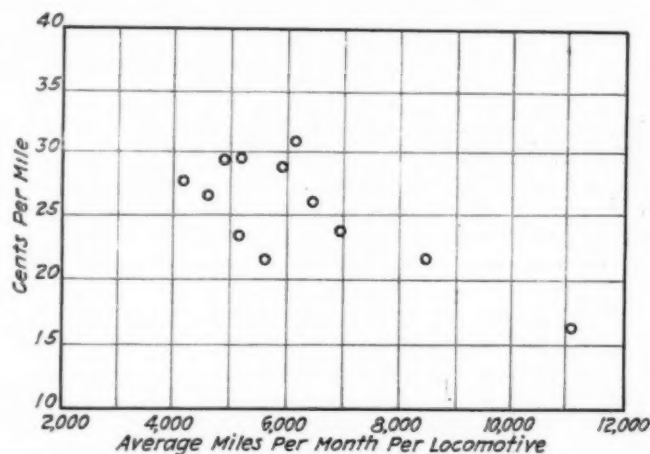


Fig. 3—Relation Between Running Repair Unit Costs and Monthly Mileage of Pacific Type Locomotives—The Two Highest Mileages Were Made by Locomotives Running Over Three Divisions

found than the subheadings of the report of the A.R.A. Committee on Locomotive Utilization. "A systematic and thorough repair program"—"Importance of adequate facilities"—"Extending locomotive runs"—"Elimination of unnecessary power"—are among the most important.

No conclusions are necessary. The tables and diagrams tell the whole story. The greater the utilization, the better the costs.

"Rolling stones gather no moss." The figures indicate that "rolling engines gather few costs."



Vienna-Paris Express in the Austrian Tyrol

Education in Freight Rates on the Atlantic Coast Line

By John L. Cobbs, Jr.

BECAUSE of the great number of commodities that make up the traffic carried by a large railroad, and the variety of conditions under which this traffic moves, one of the most difficult things that the management has to contend with is to see that its agents make the correct charge for every shipment of freight that it handles.

The railroad is responsible for applying the correct rate; all freight bills are checked by the accounting department and if too high a charge has been made a refund is paid; if too low an additional payment is requested. But all of this takes time and costs money. Shippers or consignees of freight like to feel that when they pay their freight bills they have closed the matter for all time. To be sure, they accept refunds on account of overcharge gladly enough but they are apt to look askance at requests to make additional payment. This is not only natural but to the customer seems reasonable, because the goods in the shipments are very often sold, at a price into which the freight charge enters, before the undercharge is discovered. If the discrepancy in the charge is considerable, as sometimes happens, the merchant may actually lose money on the transaction by the railroad's failure to make the proper charge at the time the goods are delivered. It is distinctly to the advantage of the railroad to have the proper charge made and collected when the freight is delivered.

How to Secure Correctness in Making Freight Bills

Some three or four years ago the agent for the Atlantic Coast Line at one of its largest stations, in attempting to increase the efficiency of his office force, conceived the idea of making a special effort, other than the regular routine, to train the rate clerks, billing and revising clerks in his office, as well as those others who were in line for promotion to such positions, in the proper application of rates. The first meetings were confined to the employees in the agency, and meetings were held at irregular intervals as the opportunity offered. The effort was to have rate experts and others entirely familiar with the rate structure and the application of rates explain in detail to the clerks how each tariff should be applied to the traffic covered by it. The meetings took the nature of an informal discussion of all the points involved, and gave the clerks an opportunity to clear up in their minds any points about which they were uncertain.

The interest in the meetings and the benefits resulting therefrom were so marked that it was decided to extend the effort to the forces at the nearby smaller stations. Meetings were then held at points at which the best attendance could be had with the least interruption to the regular duties of employees. Ordinarily they took place at night or in the afternoon.

The organization was informal and attendance entirely voluntary. Interest in the classes was sustained by the interest of the agents in their work and by their desire to increase their own efficiency and to qualify for promotion. While there was no effort on the part of the management to force attendance, the rate classes were given every encouragement and wherever possible the duties of the employees were arranged so that they could attend the class meetings.

Early in 1925 it was decided to extend the work to the agencies at other parts of the system. A conference was

held at which a representative agent from each operating district was in attendance. The matter was discussed at some length and the proposal that the rate classes should be held in their respective districts met with enthusiastic support.

As a result of this meeting the organization of additional classes was begun and has been continued.

The organization of the classes has been left to the agents themselves as it was felt that thus the best results could be obtained. One of the principal agents in each district is selected by the agents as chairman of all rate classes in that district. This chairman in turn selects the best posted agent or rate clerk in the district as class leader. He also determines how many meetings shall be held, depending upon the geographical location of the district and on train schedules. The time of the meetings is determined by the pressure of business and the dates are set so as to interfere as little as possible with heavy traffic movements. The districts are ordinarily divided into two classes and four to six meetings of each class are held during the year.

The Range of Subjects

The principal rates or tariffs to be discussed are selected in advance of the meeting and are chosen because of their importance as applying to seasonal movement of traffic, or because of special movement that may be anticipated, or by reason of changes in the tariff. Very often the class leaders, immediately before the meeting, send out questionnaires to the agents in their classes requesting rates on the various commodities moved to and from each station. The answers to the questionnaires are carefully checked and corrected and at the meeting are read and discussed in order that each agent may be shown exactly wherein his knowledge of rates is deficient.

Special attention is paid to the discussion of tariffs applicable to specified commodities, which are to move from a territory just in advance of the movement. For example, the late winter meeting of the rate classes in the Wilmington District was devoted almost exclusively to the perishable protective service rates on vegetables which move in large quantities out of that territory during the spring.

The agents are questioned to determine whether they have the proper tariff in their office to cover their traffic and are given an opportunity to bring up any questions regarding rates about which they are uncertain.

The rate classes are attended by agents and rate clerks, billing and receiving clerks. Rate experts, and wherever possible, representatives of the traffic and accounting departments, are also present in order to explain any complicated problems that arise and to make clear to those in attendance the reasons why certain rates have been put into effect. The attendance ranges from 25 to 75, depending on the territory and the number of agencies embraced in each class.

The time and place of the meeting is carefully considered by the district chairman and district superintendent to the end that as large an attendance as possible may be had without interference with regular work. Ordinarily the meetings are held at night or on Saturday afternoons. Of course it is not possible for every station to be represented at every meeting as some outlying points cannot be relieved at any time. The organization of the classes and the attendance has been kept entirely voluntary and the success which has been attained is attributable to the activities of the agents and their assistants and the co-operation and encouragement of the transportation and operating officers.

While there is no centralized, hard and fast control of the meetings, the auditor of overcharge claims gives special

attention to the work because of the close connection that it has with his own department.

The cost of the meetings to the railroad company is negligible. The employees have found the meetings so valuable that they often devote to attending the meetings time that they might otherwise have to themselves.

A typical meeting was that held recently on a Saturday afternoon at Chadbourn, N. C., a centrally located junction point with train schedules that permitted a number of agents to go to Chadbourn in the afternoon and return to their homes that night. Agents and other agency employees were present from Wilmington, Hallsboro, Bolton, Whiteville, Cerro Gordo, Boardman, Marion, Aynor and a number of other stations within a radius of about 60 miles. The meeting was attended also by the local superintendent and by the auditor of overcharge claims, an assistant general freight agent, a number of rate experts, and several officers from general headquarters, bringing the total number up to about 50. Some of the questions asked and discussed were:

"When does the value of livestock increase the freight rate?"

"How can I tell what rate to apply when one tariff shows a certain rate for fruit and vegetable hampers and another tariff provides for the application of lumber rates on the same commodities?"

"What rate shall be applied to trailer carts and motor vehicles and tractors when shipped assembled or without wheels?"

"How is the rate determined on a car of mixed strawberries and vegetables?"

These and many other questions that worry agents and their helpers were thoroughly threshed out and explained to the satisfaction of all present.

As is usually the case the meeting was made the occasion for getting better acquainted with the local people. One of the city officials welcomed the members of the class. A number of prominent citizens had supper with the members of the class after the meeting and at this time there were informal talks by a prominent vegetable grower, a banker and by the local superintendent of the schools; also by other persons who take an active part in public and business affairs.

Since it often happens that a shipper has access to several stations the opportunity afforded for meeting the agents at these points on other than a strictly business basis is a pleasant feature.

During the past twelve months about 50 rate classes were held at the following points:

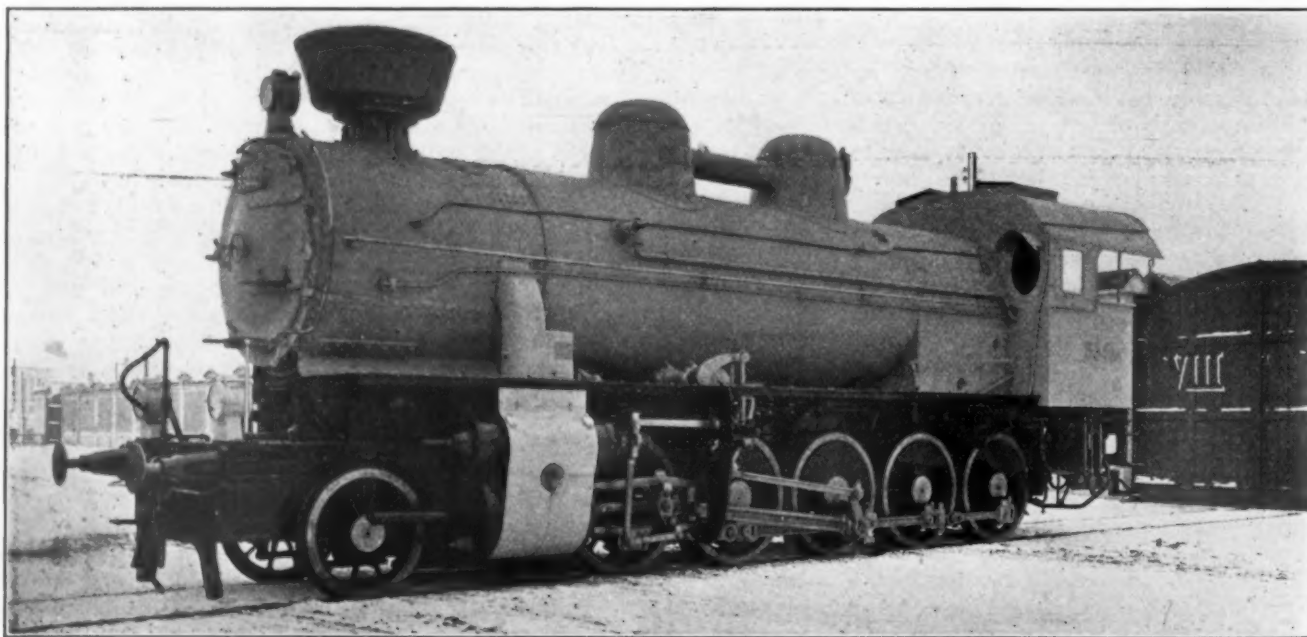
Waycross, Ga.	Rocky Mt., N. C.	Chadburn, N. C.	Lanes, S. C.
Jesup, Ga.	Warsaw, N. C.	Darlington, S. C.	Norfolk, Va.
Bainbridge, Ga.	Fayetteville, N. C.	Florence, S. C.	Tarboro, N. C.
Montgomery, Ala.	Jacksonville, N. C.	Sumter, S. C.	Hobgood, N. C.
Lakeland, Fla.		Jacksonville, Fla.	

The location of all of these points is such as to make them easily reached by a considerable number of agents. An average of three meetings was held at each place.

It is not easy to analyze the direct effect of such an activity as many factors enter into the final results; but a careful analysis of the number of claims paid as compared with the volume of business on the different divisions of the Atlantic Coast Line over a period of more than a year disclosed the fact that the claims chargeable to the Second Division, where the rate classes were first inaugurated, were considerably less than on any of the other divisions; whereas before the organization of the rate classes on the Second Division there were a great many claims for overcharges on perishable movements from that territory. After the rate classes had been in operation for some time the number of claims materially decreased.

The rate classes are not a panacea for all the ailments arising out of the incorrect application of rates, nor is the instruction sufficient to make an experienced rate man out of a new and inexperienced clerk. Careful observation, however, forces the conclusion that the rate classes offer a very practical way of increasing the knowledge and efficiency of agency employees and unquestionably they are valuable to the railroad, to the public and to the employees themselves.

The success of such a movement is very largely dependent on the interest taken in the work by agents and the other employees affected. The success of these classes is directly attributable to the energetic and untiring efforts of the employees themselves. They definitely see the value of increasing the efficiency of their service to the Atlantic Coast Line and to the public.



A Czechoslovak Locomotive

General News Department

The Freight Station Section of the American Railway Association announces that its 1927 convention will be held at Memphis, Tenn., on May 10-14.

The Denver & Rio Grande Western has opened an apprentice school at its shops at Alamosa, Colorado, in which pupils are to be instructed in general car and locomotive repair work.

The Boston & Maine has been granted an extension of time until October 1 next in which to fulfill the Interstate Commerce Commission's order of June 13, 1922, requiring installation of automatic train control on one division.

The government of Alberta has notified the Canadian Pacific that at the end of three months from Aug. 10, it will terminate the existing contract between the government and the railroad, under which the Canadian Pacific operates the Edmonton, Dunvegan & British Columbia and the Central Canada.

New York University is to establish a collegiate course in accident prevention beginning next month, intended to educate men and women for leading in this new field of work. An extended curriculum has been laid out, covering all phases of industrial and public safety. The American Museum of Safety, which is to co-operate with the university, announces that the director of this course will be C. W. Price, vice-president of the Elliott Service Company and formerly director of safety in the International Harvester Company. The combined experience, for the last 18 years, of hundreds of corporations and communities, where fatal and non-fatal injuries to persons have been reduced from 25 to 75 per cent, is held to justify the declaration that the great majority of accidents are preventable.

The safety program of the A. R. A. for the month of September has been issued (circular No. 132) by L. G. Bentley, chairman of the Committee on Education; it embodies those items of the I. C. C. record which cover fatal and non-fatal injuries under the head of (a) collapses, falls of objects, etc., and (b) coupling or uncoupling locomotives, cars, safety chains and hose. While in a sense these are minor items of Tables 71, 72 and 90, the committee believes that no item yet covered by the twelve-months' program will more readily respond to supervision. The slipping or failure of makeshift scaffolds is prominent in the list of causes under the first mentioned class. Second only to the superior authority and influence of the foreman, the trained safety inspector and a strong plant safety committee are of the greatest value in keeping this record low. In coupling and uncoupling, the neglect of men to have a complete understanding of conditions with all of their associates on a given piece of work, is one of the principal causes of failure. It is the duty of trainmasters and yardmasters to see that violations of prescribed precautions are properly punished. Employees who indulge in unsafe practices should be penalized even though no accident occurs.

Train Robbed in Wyoming

Two men, on August 14, held up and robbed the mail and express car on westbound Union Pacific train No. 5 running from Chicago to Portland, Ore., at a point between Rawlins, Wyo., and Wamsutter. The train runs by way of Pocatello, Ida., and the car robbed, known as the California car, contained registered mail. The robbery was discovered at Green River when two mail clerks were found bound in the car. The men boarded the train at Rawlins, bound the two mail clerks and then rifled several registered letter pouches. The signal at Wamsutter was set against the train and the two robbers jumped off and disappeared.

Minneapolis Moves for Safe Crossings

In Minneapolis, Minn., the city council's street traffic committee and representatives of six railroads approved plans, on August 12, for making 37 grade crossings in the city full stop crossings for all vehicular street traffic 24 hours a day. An ordinance will be prepared to embody all of the provisions of the state law requiring vehicles to stop at all railroad crossings, and in addition will authorize arrests and fines for violation of the ordinance.

Four Passengers Killed at Calverton, N. Y.

An eastbound express train of the Long Island, leaving New York on Friday afternoon, August 13, while running at high speed was derailed at Calverton, N. Y., 71 miles from New York city, and two locomotives were overturned. The engineman and fireman of the leading locomotive and four passengers were killed and 24 persons were injured. Two cars were overturned and several badly damaged. Preliminary reports indicate that a defective or unfastened switch was the cause of the derailment.

Chicago, Peoria & St. Louis Purchased

That portion of the Chicago, Peoria & St. Louis between Jacksonville, Ill., and Havana, was purchased on August 2, and will be operated, as from that date, by the Jacksonville & Havana Railroad Company. The personnel of the new company is as follows: chairman of the board of directors, F. J. Lisman, president of the F. J. Lisman Company, New York; president and treasurer, Andrew Stevenson, president of the Banks of Alaska, Chicago; vice-president, John McHenry, a grain elevator operator, Springfield, Ill.; secretary, F. S. Carter, an associate of the F. J. Lisman Company, Chicago; and general superintendent, E. E. Barrow, formerly chief clerk to the superintendent of the Chicago, Peoria & St. Louis, Springfield, Ill.

The Chicago, Springfield & St. Louis Railway Co. has also been organized for the purpose of taking over the remaining portion of the Chicago, Peoria & St. Louis, that between Springfield and Alton. The personnel of the Jacksonville & Havana will operate that road when the property is formally taken over. Passenger service has been reinstated between Havana and Jacksonville. Under the new time-table there are two trains each way daily, one in the morning and one in the afternoon.

Under the new management, the Jacksonville & Havana has leased equipment from the Illinois Central. Motor coaches are being used. During the first two weeks of operation the passenger traffic increased 371 per cent, and freight 77 per cent, as compared with the same two weeks in July.

Serious Delays in New York City by Flood

An unprecedented rain storm in New York city on Thursday afternoon, August 12, when $3\frac{1}{4}$ in. of rain fell within 1 hr. 10 min., flooded the tracks of the subways in several places and flooded the four tunnels of the Pennsylvania beneath the East River to such an extent that traffic was not fully resumed for about 24 hours.

The passenger trains of the Pennsylvania between New York and western points are made up at Sunnyside yard, Long Island, and difficulties in moving these trains from the yard to the station imposed delays throughout the evening from about 5 p. m. until past midnight. One through train was delayed four hours in starting. Trains from the west were sent to the old terminus of the Pennsylvania at Jersey City and the congestion at that terminus also caused much delay.

Trains of the Long Island were disarranged by the flood more than those of the Pennsylvania because of having fewer motors which could defy the water, and only one train of the

Long Island was run out of the Pennsylvania station, Manhattan, on Friday, until late in the afternoon. Suburban trains, with their thousands of passengers for Manhattan in the morning and equally large numbers from Manhattan in the afternoon, made their termini at points in Brooklyn where passengers could be transferred to or from the lines of the Brooklyn-Manhattan Transit Company and the Interborough Rapid Transit Company. The B. M. T. suffered the least delay because of the flood. The B. M. T. and the I. R. T., though already crowded with their normal traffic, carried most of the Long Island passengers throughout Friday.

It was estimated that the water in the four Pennsylvania tunnels under the East River amounted to 1,500,000 gallons, and pumps were borrowed from the Interborough and the B. M. T. to aid in clearing the tracks. Tunnel No. 4 was cleared at 6 a. m. on Friday and tunnel No. 3 at 10:35 a. m., the pumps taking water out at the rate of 38,000 gallons a minute. Tunnel No. 2 was cleared at 3 p. m. and tunnel No. 1 an hour later.

Traffic was impeded on the Long Island also by washouts at Elmhurst and at two or three other places.

Eighteen Hundred Miles of Automatics

The Great Northern Railway announces that the automatic block signaling system of its main line is now complete from St. Paul, Minn., to Seattle, Wash., 1,794 miles, which the company asserts to be the longest unbroken installation of automatic signals on any railroad in the world. A train running from St. Paul to Seattle is operated under the block system every foot of the journey. Beginning with the year 1923, color-light signals have been installed, for use both day and night, and over one-third of the mileage mentioned consists of these signals.

Yale Survey of Transportation

The art or science of transportation as a subject of instruction in schools, colleges and elsewhere, is not one that is easy to deal with nor even to define with satisfactory simplicity; and the president and corporation of Yale University, preparatory to enlarging the scope of the work of the university, under the benefaction of Lord Strathcona, decided two years ago to make a thorough investigation, throughout the United States, of all that was being done in that field; and the results of this investigation are now embodied in a report of 179 pages which has been submitted by Victor Topping and S. James Dempsey, who made the survey under the direction of the Committee on Transportation. These men are holders of Strathcona memorial fellowships in Yale.

The committee on transportation was appointed by President Angell to formulate the necessary plans for graduate and undergraduate work in this field at Yale. The committee—Professors C. J. Tilden, S. W. Dudley and Winthrop M. Daniels—has had the report printed and apparently has not as yet taken any further action. The introductory note says that all expressions of opinion in the report are those of the two investigators. The work, however, seems to have the tacit approval of the committee.

The scope of this study is indicated by the headings of the chapters: Need for promotion of scientific knowledge in transportation; present status of instruction (railroad instruction systems, vocational schools, universities and technical schools); Research in transportation subjects (many organizations concerned); The present attitude toward the university's task; Improvements requisite in transportation study (unsatisfactory conditions found nearly everywhere); The function of the university.

The investigators visited 24 universities and other institutions of learning and over 100 public and private bureaus, associations, research organizations and railroad companies; and also the Electric Railway Journal, Engineering News-Record, *Railway Age*, *Traffic World* and the American Railway Express Company.

Considering the question wherein universities may contribute most effectively the editors suggest: (1) more stress should be laid upon fundamental economic principles and less upon detailed historical recital of past developments; (2) courses in railway and highway engineering are extremely desirable for all students of civil engineering; (3) graduate students in any

field of transportation should study the major features of the physical apparatus; (4) courses in economics and engineering departments should be co-ordinated, and rigid departmental barriers be broken down; (5) intensive specialization should be preceded by a good preparation in the fundamentals; (6) the universities should co-operate with each other so that each university shall specialize in the subjects for which it is best prepared; (7) certain subjects should be accorded more attention (seven subjects named); (8) the university can contribute most by fostering scientific research; (9) attempts to provide professional training should be undertaken with caution; even in purely engineering matters the best preparation is a broad scientific and technical education; (10) both universities and the industry must preserve an open mind and be ready to co-operate. Existing co-operative courses between college and industry may be extended to cover other than engineering phases provided the duration is sufficient to provide a broad scientific education.

Appendices, filling about 50 pages, include information about other investigations and about the educational activities of the Southern Pacific, the Pennsylvania, the Southern Railway and the Central of Georgia.

Attitude of Opposed Political Parties

in Canada on the C. N. R.

The attitude of the Liberal and the Conservative parties toward the Canadian National has been a subject of discussion during the present election campaign in Canada. At a meeting in Brandon, Manitoba, last week, Arthur Meighen, Premier and Conservative leader, telegraphed to Sir Henry Thornton, president of the railways, for his opinion on the subject.

"Statements are being made," Mr. Meighen's telegram read, "that the present government, including myself, have been and are interfering with the management of the National Railways. I ask you to wire me whether there is the slightest foundation for these assertions, and if so to advise me what it is."

Sir Henry's reply follows:

"I have received your telegram of August 6, reading as follows," (here Sir Henry quotes the text of Mr. Meighen's message). "In reply I have to say that the administration of the Canadian National Railways has no complaint whatever with respect to the attitude of the present government or indeed the preceding government in their relation to the National Railway system."

In his tour through Ontario last week Charles A. Dunning, who was Minister of Railways and Canals in the last Liberal government, said:

"Surely the Liberal policy with regard to the Canadian National Railways is so clear that he who runs may read, because we have put our policy into operation. We put the various lines under one head; under one, and the most efficient railway head that could be secured, and that policy has resulted in a vastly improved status for the Canadian National Railways."

"Two years ago there were the 'Whispers of Death,' calculated to persuade the people that this great public experiment is a bad thing. But those whispers have stopped. Last year the C. N. R. required only \$10,000,000 of the \$30,000,000-odd voted the previous year, and the net earnings to date this year are up 296 per cent as compared with the same period last year."

"This improvement is not accidental. The railways earn their money by carrying passengers and freight, and the improvement in the position of both the C. N. and C. P. railways has been made possible by the improved position of this country and its business."

A RAILROAD devoted entirely to the transportation of potatoes, and having 20 miles of main track, is one of the curiosities of transportation in England. It is on the farm of W. Dennis & Sons, in Lincolnshire, who raise potatoes on 7,000 acres of land. The gage of the track is two feet, and the rails weigh 14 lb. to the yard. As described in the *Railway Gazette*, the road is operated both by horses and by a tractor driven by steam, generated by paraffin. The cars carry each two tons, on axles 15½ in. in diameter. The tractor is started by means of a hand pump. Potatoes are sent to London, to Peterborough and to ports for export; and in the busy season, 400 wagon-loads are dispatched each day.

Traffic News

The Dominion Express Company, operated by the Canadian Pacific Railway, is hereafter to be known as the Canadian Pacific Express Company.

During July the Southern operated 14,438 passenger trains, of which number 13,757 or 95 per cent, reached their final terminal on time, while 14,076, or 97.4 per cent, maintained schedule.

Following the granting of permission by the North Carolina Commission, the Seaboard Air Line announces that passenger trains 31 and 34 between Wilmington and Hamlet, and trains 41 and 44 between Raleigh and Hamlet, will cease running after Sunday, August 29.

The Colorado & Southern has asked the Colorado public utilities commission for permission to abandon all passenger service on its Georgetown Loop line between Denver, Colo., and Silver Plume, a distance of 49 miles, stating that because of the inroads of buses and privately owned automobiles it is impossible to operate trains without serious losses.

The Interstate Commerce Commission on August 13 suspended until December 23 the tariffs filed by the Minneapolis & St. Louis and the Minneapolis, St. Paul & Sault Ste. Marie proposing to establish joint through rates on grain and grain products only via the two roads and connections from Minneapolis, St. Paul, Duluth and Superior and groups to destinations in Eastern Trunk Line and New England territories, which are uniformly 6 cents per 100 lb. lower than the current rates from and to the same points which are made by combinations on Peoria, Chicago Junction, or Milwaukee, etc., while the rates by all other routes remain on the present basis.

Protests Against Cut in Grain Rates

Numerous communications have been received by the Interstate Commerce Commission protesting against or supporting the proposals of the Minneapolis & St. Louis and the Minneapolis, St. Paul & Sault Ste. Marie to make a 6-cent reduction in the rates on grain and grain products from northern Minnesota, North Dakota and Montana to the East, as recently reported (*Railway Age*, August 14, p. 308). Most of the communications urge the commission to suspend the tariffs. The Minneapolis & St. Louis said the reduction was intended to restore to Minneapolis the position which it lost by the disruption of rate relationships resulting from the percentage adjustments of the war period.

The lines east of Chicago charge the publishing lines with an unfair use of tariff concurrences.

The Minnesota Railroad & Warehouse Commission and the North Dakota Railroad Commissioners have written to the I. C. C. supporting the proposed reduction.

P. R. R. Dining Cars

The dining car service of the Pennsylvania Railroad is the subject of a 16-page pamphlet recently issued by that road, giving all the usual facts about an enterprise of that class and also a profusion of portraits of the waiters, chefs, stewards and the managers. This last class includes portraits of no less than 22 substantial men who, from their appearance, might be taken as managers of railroads or of million-dollar hotels. The statement says that most of the stewards (and presumably also the managers) have had hotel experience. The company operates 152 dining cars on 165 trains and the number of meals served is about 4,000,000 a year, or 10,700 a day. The number of employees in the department is over 1,779. The commissary at Sunnyside yard, New York City, employs 72 persons and the number of dining cars which begin their run at this yard is 87. The other two large commissaries are at Columbus, Ohio, and at Chicago. Sunnyside receives 19,000 pieces of new crockery every month, and on the lines east of Pittsburgh, the stock of

4,000 tumblers has to be renewed every month. As is well known the cost of dining car service is much larger than the income; and the cost recorded does not include interest or depreciation on the cost of the cars, or taxes or insurance.

New Motor Cars on the Boston & Maine

The Boston & Maine announces that the first of its 10 new large motor rail passenger cars has been received from the Osgood Bradley Car Company, and that the other nine will be delivered within a week or two. With this accession, the road will have 24 motor rail cars, and plans have been made to substitute these for steam passenger trains on a large number of schedules.

One of these runs is from Boston, Mass., to Troy, N. Y., 190 miles; another from Boston to Springfield by way of Northampton, 122 miles, and numerous runs of 50 to 100 miles. On most of these runs a 61-ft. motor is to be used, hauling a coach; on others, a 73-ft. motor car will be used alone.

Record Freight Traffic for Half Year

The railroads of the country during the first six months this year handled the greatest freight traffic they were ever called upon to move during any corresponding period, according to reports just filed with the Bureau of Railway Economics.

This freight traffic amounted to 227,116,889,000 net ton miles, exceeding by 1,632,421,000 net ton miles or seven-tenths of one per cent, the best previous record, which was made during the corresponding period in 1923. The number of cars loaded with revenue freight also exceeded all previous corresponding periods. The total tonnage was an increase of 6.9 per cent over the corresponding period last year and of 10.9 per cent over 1924. In the Eastern District the increase was 7.9 per cent over the same period last year; in the Southern District 10.6 per cent, and in the Western 3.8 per cent.

The volume of freight handled in June was also the greatest for any June on record, amounting to 39,236,630,000 net ton miles, or two per cent above the best previous June, which was in 1917; while it also exceeded by 9.4 per cent that for June, 1925. In the Eastern District June showed an increase of 10.9 per cent over last year, the Southern reported an increase of 9.8 per cent and the Western 7.2 per cent.

A. R. A. Report on the Wheat Movement

L. M. Betts, manager of the Closed Car Section of the American Railway Association, in a circular dated August 14, reviews the experiences of the railroads in handling the winter wheat crop, with some notes on the prospects in connection with spring wheat.

In the six principal spring wheat states, the crop estimate of August 1 is 192,811,000 bushels, or over eight millions above the government estimate of July 1. All roads are requested to give special attention to the prompt return of grain cars to the north-western roads.

The estimate of the winter wheat crop also improved greatly between July 1 and August 1, the increase in the whole country being 58,720,000 bushels, with about 23 millions increase in the six principal wheat states. The crop in Oklahoma exceeds by nearly 12 per cent the highest previous production. Kansas shows a remarkable increase, fully confirming the grain men's estimate, in June, which was higher than that of the government.

From 60 to 90 per cent of the grain in the more important wheat territory this year was harvested with "combines," machines which cut and thresh the wheat in one operation; and because of this improvement in machinery, the railroads have been overwhelmed with early shipments at many places. The Santa Fe and the Rock Island, between June 16 and July 31, exceeded previous high records of loading by 84 and 57 per cent, respectively. On two branch lines of the Santa Fe grain had to be stored on the ground. In spite of this congestion, the railroads were able to afford general satisfaction in their handling of grain shipments. Careful preparations had been made beforehand, and the terminal and port committee of shippers are given much credit for the successful handling of the crops. These committees were established at Kansas City, St. Louis, Fort Worth, Wichita, Hutchinson, Salina, St. Joseph, Atchison and at two gulf ports, Galveston and Houston.

Commission and Court News

Interstate Commerce Commission

The Pere Marquette has been authorized by the Interstate Commerce Commission to remove and discontinue the use of that part of the train-stop device heretofore installed on its line between Pennsylvania Junction, Mich., and Oak Station, Mich., a distance of approximately 4 miles.

Lines east of the Mississippi River have filed a petition with the commission for reargument, reconsideration and postponement of the commission's order of July 12 requiring them after October 12 to bear the transfer charge across the river from East St. Louis to St. Louis on westbound freight passing through both points on combination rates which are the same to St. Louis as to East St. Louis. Petitioners have not been able to reconcile the decision in this case with the decisions of the Supreme Court and with other decisions of the commission involving substantially the same questions. The West Side Lines are the ones who through all these years have acknowledged that they were required to apply St. Louis rates from East St. Louis in order to meet the competition of the Alton * * *.

Present freight rates on bituminous coal from Illinois and Indiana mines to Chicago and the northwest are neither unreasonable nor unduly prejudicial, Attorney-Examiner William A. Disque holds, in a tentative report to the commission filed on August 16 in the pending Illinois-Indiana coal cases. The case centers largely around the 25-cent differential between the southern Illinois and western Kentucky groups, but the Indiana mines also seek increased differentials between the Indiana and western Kentucky groups. The commission's examiner states that the coal mining industry in Illinois and Indiana is in serious condition and finds that these operators are not maintaining their relative position in the coal business. "The present differentials may be less than transportation conditions alone would justify," Examiner Disque reported, "but however that may be, this record does not warrant a change."

Western Trunk Line Freight Rates

Revision of class rates in Western Trunk Line territory is the subject of a ten-page circular issued by the commission on August 12 calling a general conference to be held at La Salle Hotel, Chicago, on September 10. For more than a year committees of carriers and shippers have been endeavoring by co-operative efforts to work out a mutually satisfactory adjustment of class rates in Western Trunk Line territory, and between that territory and official territory; but as there is little prospect of a complete agreement from the pending negotiations, the commission has decided to proceed without further delay to take action, as the class rate adjustment presents an important and complicated problem.

The commission desires to get all parties to agree in advance to limit the scope of the inquiry as much as possible, and without delay; but it will consider whether other than class rate questions shall be dealt with. The circular cites 15 or 20 freight rate complaints and investigations of various origin which are now pending and which will be included in this general inquiry.

It is hoped that the presentation of facts and testimony can, by agreement, be consolidated or condensed and be presented in non-argumentative form, at the outset of the hearing, by one or more selected witnesses.

Fertilizer Rates in the South

Fertilizer and fertilizer materials in the South are entitled to a relatively low basis of rates and the commission has prescribed, effective January 1, 1927, maximum rates, based on a distance scale for uniform application over standard lines throughout southern territory. So-called short or weak lines are accorded arbitraries over the rates prescribed for the standard lines. The

commission found that intrastate rates in Alabama are the cause of unjust discrimination against interstate commerce, but the intrastate rates in effect in Georgia and South Carolina were found not to be unlawful, except in certain individual instances. Fourth section relief is granted.

Court News

Exemption in Free Pass to Lineman

A railroad under its contract with a telegraph company issued an annual pass to a lineman, who used it on a trip for his individual pleasure. The Georgia Court of Appeals holds that the pass when being so used was gratuitous and not in consideration for services, and a stipulation therein exempting the railroad from liability for injury was enforceable.—*Brooks v. Bugg* (receiver, A. B. & A.), (Ga. App.) 131 S. E. 365.

Railroad's Right to Patent to

Non-mineral Portion of Tract Selected

Where half of a 40-acre tract granted to a railroad under Act July 1, 1862, and Act July 2, 1864, and acts amendatory thereof, was mineral and the other half was non-mineral, the Court of Appeals of District of Columbia holds that the government could not refuse to issue a patent for the non-mineral half.—*Work v. Central Pacific*, 12 Fed. (2d) 834.

Failure to Prove Delay in Transportation

In an action against the initial carrier for delay in transportation of 10 cars of potatoes the Virginia Special Court of Appeals held that the burden was on the plaintiff to show that cars which arrived at Jersey City at 11:55 a. m. on Sunday should have arrived at its North River pier (New York) earlier than 2:45 p. m. on Monday. The cars were placed on barges at the Jersey City Terminal at 1:20 p. m. on Monday. There was evidence of unusual congestion at the pier, of which the railroad had no advance notice. It was held that the railroad acted with reasonable dispatch, and that it could not have been expected to clear out every pier to handle the unusual influx of potatoes, which is not a particularly perishable commodity.—*L. J. Upton & Co. v. A. C. L.* (Va.) 131 S. E. 827.

Railroad Not Obligated to Turn Unclaimed

Freight Over to Warehouse Company

In an action for the balance of storage charges remaining due after the goods had been sold therefor, where it was contended that the railroad should have transferred the goods to a warehouse company, whose charges would have been less than one-tenth of those the railroad was authorized to make, the New York Appellate Division holds that New York Railroad Law, section 68, authorizing a railroad to deliver unclaimed freight or baggage after 60 days to a warehouse company, is merely permissive, for the railroad's benefit to protect itself against congested storage facilities, and imposed no duty on the railroad to turn the goods over to a warehouse company.—*Erie v. F. Kieser & Co.*, 215 N. Y. S. 576.

Duty to Notify Consignor of

Consignee's Failure to Accept

The New York Appellate Division holds that there may be a duty to notify the consignor of the consignee's neglect or refusal to accept a shipment, but this duty is not absolute, depending on circumstances. Where the shipment does not contain the name and address of the consignor, the court says that the right to notice is slight. The duty may also depend in a measure on the attitude of the person entitled to delivery. If he promises to unload the goods shortly, or gives other indication of that purpose, the railroad may be excused from giving immediate notice to the consignor. Likewise, the railroad is excused if the consignor receives notice from another source, as from the consignee; for, having such notice, he is required to take active measures to care for the property.—*Porter v. Pennsylvania*, 215 N. Y. S. 727.

Assumption of Risk of Overhead Bridge by Brakeman Held Jury Question

In an action under the Federal Employers' Liability Act for the death of a brakeman killed by contact with an overhead bridge while riding on the top of a freight car, the Circuit Court of Appeals, Eighth Circuit, holds that there was no evidence to show that the brakeman knew anything about the clearance or want of "telltales," and knowledge on his part of the danger involved could not be presumed from the fact that he had passed under the bridge inside of passenger coaches while acting as conductor. An application which he signed, as to exercising care in passing under bridges, etc., but not specifically mentioning the bridge in question, was held insufficient to show assumption of risk as to all obstructions. The brakeman was on a car near the engine, and his duty involved looking to the rear to pass on signals to the engineer. It was held that whether the danger from the bridge was so obvious that the brakeman should have known it was a question for the jury.—*Judgment for plaintiff was affirmed.*—*Davis v. Crane*, 12 F. (2d) 355.

"Engaged in Interstate Commerce" Within Federal Employers' Liability Act

The Maine Supreme Court holds that a train which had an interstate character when it entered defendant railroad's switching yard, retained that character until all the cars had been distributed; and a switchman injured while switching them, was engaged in interstate commerce.—*Hatch v. Portland Terminal Co. (Me.)*, 131 Atl. 5.

A movement of cars from Verona to Sharpsburg was admittedly in interstate commerce. The return journey, if there was no intrastate movement of cars, was made by engine and caboose without train. While returning light, a brakeman was killed in a collision. The Pennsylvania Supreme Court holds that the brakeman's service was continuously interstate and a complement of the outward journey, and the continuity would not be broken by expecting to engage in intrastate service on the return movement.—*Patterson v. Pennsylvania*, 284 Pa. 577, 131 Atl. 484.

Where the railroad did not control the means used by its employees to come to work, the New Jersey Supreme Court holds that a roundhouse employee, injured while walking on the track to a station to take a passenger train to his place of work, when his employment was in interstate commerce, was not within the federal act.—*Symonski v. Central N. J. (N. J.)*, 131 Atl. 628.

The federal district court for western Missouri holds that an employee, injured while unloading supplies designed not for immediate use, but for interstate and intrastate use when needed, was not within the act.—*Farmers' Bank & Trust Co. v. A. T. & S. F.*, 11 F. (2d) 993.

The New York Appellate Division holds that an employee engaged in cleaning the fire boxes of engines, not withdrawn from service, used indiscriminately in interstate or intrastate commerce, was employed in interstate commerce.—*Salvo v. N. Y. C.*, 215 N. Y. S. 645.

The federal district court for western Virginia holds that the "kitchen flunky" of a mason's crew engaged in repairing interstate tracks, killed while carrying coal taken from a car of commercial coal, against the foreman's orders and a minor unwritten rule of the company, was employed in interstate commerce.—*Brown's Admr. v. N. & W.*, 12 F. (2d) 319.

Negligence of the carrier is the basis of all liability under the Federal Employers' Liability Act, and recovery cannot be had under the act by simply showing the injury and that the injured employee was engaged in interstate commerce at the time.—*Scott v. N. & W. (W. Va.)* 130 S. E. 98.

United States Supreme Court California Law Regulating Private Contract Highway Carrier Unconstitutional

A case involving the constitutional validity of the Auto Stage and Truck Transportation Act of California, California Stat. 1917, c. 213, p. 330, as construed and applied to a trucking co-partnership by the California Supreme Court (70 Cal. 457) has come before the Supreme Court of the United States, which,

reversing the state court's decision, holds that as regards the plaintiffs the statute is unconstitutional. The act provides for the supervision and regulation by the railroad commission of transportation for compensation over public highways by automobiles, auto trucks, etc. The term "transportation company" is defined to mean a common carrier for compensation over any public highway between fixed termini or over a regular route. Permits must be obtained from the incorporated city or town, city and county, or county within or through which the applicant intends to operate. Such transportation companies are declared subject to the regulation of the railroad commission, from which, in addition to the permit from the municipality, the applicant must obtain a certificate of public convenience and necessity. In 1919 the act was amended, Stat. 1919, c. 280, p. 457, so as to bring under the regulative control of the commission automotive carriers of persons or property operating under private contracts of carriage; and the term "transportation company" was enlarged so as to include such a carrier. It was further provided that no such transportation company shall operate for compensation over the highways without first having secured from the commission a certificate of public convenience and necessity so to do.

The plaintiffs were engaged under a single private contract in transporting, for stipulated compensation, citrus fruit over the public highways between fixed termini. They were brought before the commissioner charged with violating the act, for the reason that they had not secured from the commission, a certificate of public convenience and necessity. The commission, while agreeing that they were, in fact, private carriers, held that they were subject to the provisions of the act, and directed them to suspend operations under their contract unless and until they should secure a certificate that public convenience and necessity required the resumption or continuance thereof. The commission's order was upheld by the state supreme court.

The plaintiffs contended that, in its application to private carriers, the act has the effect of transforming them into public carriers by legislative fiat. The state court said that, while the state had not such a power, it had the power to grant or altogether withhold the privilege of using its public highways for the purpose of transacting private business thereon; and that, therefore, the legislature might grant the right on such conditions as it saw fit to impose.

The United States Supreme Court says that "the act, as thus applied, is in no real sense a regulation of the use of the public highway. It is a regulation of the business of those who are engaged in using them. Its primary purpose evidently is to protect the business of those who are common carriers in fact by controlling competitive conditions. Protection or conservation of the highways is not involved. This, in effect, is the view of the court below plainly expressed."

The court says that: "Having regard to form alone, the act here is an offer to the private carrier of a privilege, which the state may grant or deny, upon a condition, which the carrier is free to accept or reject. In reality, the carrier is given no choice, except a choice between the rock and the whirlpool,—an option to forego a privilege which may be vital to his livelihood or submit to a requirement which may constitute an intolerable burden."

The court holds that the act, as applied by the court below, violates the plaintiff's rights as guaranteed by the due process clause of the Fourteenth Amendment; and that the privilege of using the public highways of California in the performance of their contract is not and cannot be affected by the unconstitutional condition imposed.

The court below seemed to think that, if the state might not subject the plaintiffs to the provisions of the act in respect of common carriers, it would be within the power of any carrier, by the simple device of making private contracts to an unlimited number, to secure all the privileges afforded common carriers without assuming any of their duties or obligations. The Supreme Court says that no such case is presented here; and it was not to be understood as challenging the power of the state, or of the railroad commission under the statute, whenever it should appear that a carrier, posing as a private carrier, is in substance and reality a common carrier, to so declare and regulate his or her operations accordingly.—*Frost & Frost Trucking Co. v. Railroad Commission of California*. Decided June 7, 1926. Opinion by Mr. Justice Sutherland.

Foreign Railway News

Railway to Be Built in Madagascar

During the next six years a railway covering a distance of 169 kilometers will be built in Madagascar, between Fianarantsoa, in the south central portion of the island, and the southeast coast, states a report from Consul James G. Carter, Tananarive, Madagascar, made public by the Department of Commerce. The contract therefor, amounting to about 100,000,000 francs, will be adjudicated in France next November.

The acting Director of Public Works in Madagascar is of the opinion that work will begin on the railway as early as April, 1927.

This would appear to refer to the roadbed, work on which may be carried on for 2 or 3 years before the actual laying of the rails begins.

In keeping with the policy governing contracts for public works and the furnishing of material for French colonies, the contract for building this railroad will evidently be awarded to a French firm and foreigners may not even be permitted to bid, it is believed in Madagascar. The specifications may require that all material used be of French origin and transported in French bottoms, and it is even considered likely in Madagascar that the project will be financed by French banking interests.

Final Re-establishment of Rail

Comptoir Expected Soon in Europe

According to authoritative French iron and steel trade papers, the European Rail Manufacturers' Association has been practically reconstituted, and it is generally expected in Europe that at its next meeting to be held this month, the final signatures will formally re-establish this association, according to advices to the Department of Commerce from Daniel J. Reagan, Paris. During the recent negotiations at London, it was decided to establish £6 per ton as the price for heavy rails.

As previously reported, this cartel will be known as the "ERMA" instead of the "IRMA," and to all appearances will have a European rather than an international character. The association will have an initial duration of two years. The controlling body will be established at London, and will include four delegates, an English, a French, a German and a Belgian.

All of the orders for rails received by the four countries in this accord will be transmitted to the bureau at London, which will then farm out these demands according to the quotas fixed, it is said. It is further stated in Europe that, apparently, the principal obstacle to the final conclusion of this cartel has been the difficulty in satisfying the demands of the English members who have held out for the exclusive right to furnish the rail needs of the British dominions. It is reported that this difficulty was finally overcome by deciding that the other countries would not be permitted to sell rails to South Africa or British India until after the English industry had received sufficient orders to fill its quota.

Apprentices on Swiss Railways

Have Psychological Tests

The Swiss Federal Railways, according to the Federal Railways Bulletin, have made psychological tests, as well as other examinations of general knowledge, a prerequisite to acceptance for apprenticeship in the various shop trades.

The general knowledge examination consists of requiring the applicants to reproduce as closely as possible the essential features of a short essay which is read to them; to solve several practical problems and to write an essay on one of several subjects given them to choose from. Papers are graded according to the ideas which are expressed in them, the order in which these ideas are expressed and spelling.

Applicants take the general knowledge examination in groups. Those who pass it satisfactorily are admitted to the psychological examination, which they take as individuals. This examination

is designed to test their aptitude for the trade which they wish to learn. It includes a test for the memory of figures, the accuracy of perception, the ability to reason practically from a technical standpoint, the sensibility of muscles of the arm and hand to control the actions of those members, dexterity, and accuracy of a visual estimate. Special tests and apparatus are used for this examination and the conditions are the same for all candidates. This examination not only permits the examiner to learn the practical abilities of the young man, but also to penetrate his personality.

After these two examinations a choice to fill vacancies is made from the most apt, who are then given a physical examination which, if passed, admits them to full apprenticeship. Experience is the shop of these young men during the probationary period has borne out the efficacy of these tests in admitting only those suited to the work. A group so admitted to the Olten shops in the spring of 1925 after six months were graded as follows: 29 per cent, "very good"; 47 per cent, "good"; 24 per cent, "fairly good." Not one of the young men received the lowest passing mark which is "satisfactory."

African Railway Developments

A number of African railway projects have recently been approved by the British Foreign Office, according to Assistant Trade Commissioner Kilcoin at Johannesburg. Among these may be mentioned the £10,000,000 transport loan, of which Kenya and Uganda will be allotted £5,500,000 for harbor and railroad improvements; and the Lobito-Katanga Railway, for which a stock loan of £1,150,000 was recently floated in London with the guaranty of the British government.

In addition, the South Africa Railway Administration has recommended the extension of the present terminus of the Matubatuba-Pongola line through Zululand to the Swaziland border, as a result of representations of the Imperial government; and the administration of South West Africa has outlined a program of construction looking to the eventual linking up of the railways in the mandated territory with those of the Union and of Rhodesia.

Plans covering expenditures in Kenya and Uganda have not yet been fully worked out, but it is understood that a portion of the transport loan funds will be utilized for improvements at the port of Kilindini, the enlargement of existing rail facilities, including extensions in the direction of the Congo border and the Sudan through Uganda, and the linking up of Kampala with the system. It is also planned to build arterial highways connecting Kenya with Uganda and Tanganyika.

The Lobito-Katanga Railroad, which had been projected to Chingwari, 342 miles from Lobito Bay when the outbreak of the war prevented further construction, is now to be extended, in conformity with the original plans, to Kambove in the heart of the copper belt of the Katanga district. Since the war repeated efforts have been made to secure approval and capital for this venture, but the probable diversion of much valuable railway traffic from the Rhodesian and South African railways has brought protests from these respective governments, effectively blocking progress. The Rhodesian protests, however, have at last proved ineffectual, and final approval of the plan was given in April, 1926.

When this project is completed the Katanga mineral belt will be brought into much closer touch with Europe, and the actual saving in passage from London to Katanga will be reduced by eight or nine days. In preparation for the anticipated increased traffic, extensive improvements to provide accommodations for larger ship are being made at Lobito Bay.

The projection of the Matubatuba-Pongola line through Zululand to the Swaziland border will give producers in southern Swaziland an outlet to the world through the port of Durban (Port Natal). The area which this line would serve is represented as being of high potential value, suitable for land settlement, cattle ranching, and the raising of cotton, corn, and other agricultural products.

Considerable progress in transportation facilities has taken place in South West Africa during the time this territory has been under Union control. A number of railroad extensions have been made, and proposals are expected to be launched shortly with the object of connecting the railroads of the territory with those of the Union.

Equipment and Supplies

Locomotives

THE ST. PAUL BRIDGE & TERMINAL has ordered one eight-wheel switching type locomotive from the Baldwin Locomotive Works.

THE NORFOLK & WESTERN has ordered 10 heavy Mallet type locomotives from the American Locomotive Company. The inquiry for this equipment was reported in the *Railway Age* of August 7.

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered 10 Mountain type locomotives from the American Locomotive Company. These locomotives will have 27-in. by 30-in. cylinders and a total weight in working order of 336,000 lb. Inquiry for this equipment was reported in the *Railway Age* of August 14.

THE NEW YORK CENTRAL has ordered 10 Pacific type locomotives from the American Locomotive Company for service on the Cleveland, Cincinnati, Chicago & St. Louis. These locomotives will have 25-in. by 28-in. cylinders and a total weight in working order of 300,000 lb. It is expected that the New York Central will place additional orders for locomotives in the near future.

Freight Cars

THE ANGLO-MEXICAN PETROLEUM COMPANY is inquiring for 4 tank cars, for operation in South America.

THE PITTSBURGH CRUCIBLE STEEL COMPANY has ordered 5 flat cars from the Standard Steel Car Company.

L. SONNEBORN SONS, INC., 114 Fifth avenue, New York, is inquiring for 15 tank cars of 8,000-gal. capacity.

THE LOUISVILLE & NASHVILLE is building 50 standard caboose cars in the company's shops at South Louisville, Ky.

THE SHIPPERS CAR LINE is inquiring for 300 tank cars of 8,000-gallons' capacity and 200 tank cars of 10,000-gallons' capacity.

THE BROOKLYN MANHATTAN TRANSIT COMPANY has sent out revised inquiries for 10 flat cars, 2 box cars and 1 motor supply car.

THE FRUIT GROWERS EXPRESS has placed an order for 533 underframes for refrigerator cars with the Pressed Steel Car Company.

THE EAST JERSEY RAILROAD & TERMINAL COMPANY has ordered four steel underframe box cars of 40 tons' capacity, two steel underframe flat cars of 40 tons' capacity and five steel low side gondola cars of 50 tons' capacity from the American Car & Foundry Company.

THE PENNSYLVANIA has recently placed an additional order for repairs to 2,000 freight cars with the Ralston Steel Car Company. The Ralston Company has just completed work on a former order, received last fall from the Pennsylvania, for repairs to 3,000 freight cars.

Iron and Steel

THE BALTIMORE & OHIO is inquiring for 300 tons of steel for a bridge at Chicago.

THE ERIE is inquiring for 350 tons of steel for use at Jersey City and at Paterson, N. J.

THE ATLANTIC COAST LINE has ordered 200 tons of steel for bridges from the Virginia Bridge & Iron Company.

THE CANADIAN PACIFIC has ordered 25,000 tons of rail from the British Empire Steel Company of Sydney, N. S.

THE NEW YORK, NEW HAVEN & HARTFORD has placed an order for 200 tons of steel for use in a car shop at New Haven, Connecticut.

THE LOUISVILLE & NASHVILLE has ordered 225 tons of structural steel for bridge work, from the McClintic-Marshall Company.

THE CANADIAN PACIFIC has ordered 600 tons of structural steel for a dock at Vancouver, B. C., from the Dominion Bridge Company.

THE WABASH has ordered 200 tons of structural steel for a freight house at Detroit, Mich., from the McClintic-Marshall Company.

THE NORFOLK & WESTERN has ordered 500 tons of steel for a building at Williamson, W. Va., from the Virginia Bridge & Iron Company.

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS has ordered 1,000 tons of structural steel from the McClintic Marshall Company.

THE GREAT NORTHERN has ordered 100 tons of structural steel for use at Skykomish, Wash., from the Minneapolis Steel & Machinery Company.

THE NEW YORK CENTRAL has placed orders for 800 tons of steel for various bridges. The company is inquiring for 400 tons of steel for highway bridges.

Machinery and Tools

THE MAINE CENTRAL has ordered two 15-ton transfer tables from the Whiting Corporation.

THE TEXAS & PACIFIC has ordered a 58-in. by 16-ft. rod miller from the Niles-Bement-Pond Company.

THE PULLMAN COMPANY has ordered an axle lathe, a car wheel borer and a 5-ft. plate straightening roll from the Niles-Bement-Pond Company.

THE ATCHISON, TOPEKA & SANTA FE has ordered a car wheel lathe, a 4-spindle mud ring drill and a 90-in. quartering machine from the Niles-Bement-Pond Company.

Signaling

THE CHICAGO, NORTH SHORE & MILWAUKEE has completed the installation of electric interlocking, Union, Type F, at the intersection of its line with the Chicago & North Western at Skokie Junction near Chicago. The machine has 31 levers.

THE DETROIT, TOLEDO & Ironton has contracted with the Union Switch & Signal Company for the installation of an electric interlocking, Type F, at the intersection of its line with the Ann Arbor, near Dundee, Mich.; 23 working functions.

THE CHICAGO & ALTON has ordered from the National Safety Appliance Company, San Francisco, apparatus needed to extend the installation of national automatic train control from Mazonia, Ill., southward to Pontiac, Ill., about 30 miles. The order includes 40 track magnet units complete.

THE INTERBOROUGH RAPID TRANSIT COMPANY, New York city, has ordered from the Union Switch & Signal Company an electro pneumatic interlocking, 75 levers, to be installed at the Westchester yard, New York city, together with 29 switch and lock movements, 72 signals, 21 automatic train stops and other material.

THE FLORIDA EAST COAST has ordered from the General Railway Signal Company, material for automatic block signals to be installed between Edgewater, Fla., and Titusville, Fla., via Maytown, 34 miles. These signals are for southbound movements only. They will be operated from a 2,200-volt transmission line, alternating current. Installation is to be by the signal company.

Supply Trade News

The Chattanooga branch of the **Crucible Steel Company of America** has been removed to 337 Whitehall street, Atlanta, Ga.

The **Bethlehem Steel Company** has bought an electric cinder plant for installation at Sparrows Point, Md., from the **Roberts & Schaefer Company**.

V. V. Casey will represent the **Bonney Forge & Tool Works**, Allentown, Pa., in Pennsylvania, southern New York, Maryland, District of Columbia and New Jersey.

The **American Brown Boveri Electric Corporation** has opened a district sales office in Philadelphia, Pa., at 922 Witherspoon building, in charge of **Louis T. Peck**.

LaMonte Judson Belnap, whose election as president of the **Worthington Pump & Machinery Corporation**, New York, was announced in the *Railway Age* of August 7, was born at Burr Oak, Mich., on November 7, 1877. He was educated in the public schools of Lincoln, Neb., and afterwards attended the University of Nebraska, from which he was graduated in 1898 with the degree of B. S. in E. E. During his college course he was employed for four years during the summer vacations on survey and construction work on the Chicago, Burlington & Quincy, in Montana and Wyoming, and soon after graduation, entered the employ of the **Western Electric Company**, at Chicago, as a student apprentice. He later became associated in various technical, sales and managerial capacities with the **Wagner Electric Manufacturing Company**, St. Louis, the **Bullock Electric Manufacturing Company**, at Cincinnati, and the **Allis-Chalmers Company** at Milwaukee and Montreal. In 1911, Mr. Belnap left the **Allis-Chalmers Company** and became vice-president of the **Rudel-Belnap Machinery Corporation, Ltd.**, Montreal, retaining his interest in this company until 1925. Simultaneously with his work in the **Rudel-Belnap Company**, he organized in 1914 the **Ingersoll Machine Company, Ltd.**, of Canada, of which company he was president until 1920; also, from 1917 to 1919 he was managing director of the **Williams Manufacturing Company, Ltd.**, of Montreal, and from 1919 to 1925, was president of the **Rolls-Royce Company of America** at Springfield, Mass. In 1925 and 1926 he was chairman of the board of the **Wills Sainte Claire Company**, of Marysville, Mich. When the United States entered the war the **British War Mission** in Washington was organized and Mr. Belnap served as its assistant director, and in addition to his duties there he was actively engaged at the same time on war orders with the **Williams Manufacturing Company, Ltd.**, at Montreal.

The **Locomotive Firebox Company**, Chicago, has opened an office at 30 East Forty-second street, New York, in charge of **George N. De Guire**, assistant to the president.

The **Bridgeport Brass Company** has removed its New York City office from the Pershing Square building to the **Farmers' Loan & Trust Company** building, 475 Fifth avenue.

Samuel Arnold, 3rd, has been appointed representative in the Pittsburgh district, with office in the Fulton building, Pittsburgh, Pa., of the **Pennsylvania Pump & Compressor Company**, Easton, Pa.

William J. Adamson, formerly assistant to the president of the **Trumbull Steel Company**, Warren, Ohio, has been placed in charge of the hot and cold rolled strip steel sales of the **Acme Steel Company**, Chicago.

Stewart H. Ford, in the railway supply business, with headquarters in the Mutual building, Richmond, Va., has been appointed southeastern railroad representative of the **Atlas Steel Corporation**, Dunkirk, N. Y.

M. C. Peterson has been appointed district sales manager of the Chicago district of the **Sunbeam Electric Manufacturing Company**, with offices at Evansville, Ind. Mr. Peterson was formerly in the service of the **Baldwin Locomotive Works**.

L. N. Ridenour has been appointed special factory representative of the **Harnischfeger Corporation**, Milwaukee, Wis., and **E. L. Puckett**, Richmond, Va., has been appointed district manager of the **Harnischfeger Corporation's** Charlotte, N. C., office.

The San Francisco office of the **Massey Concrete Products Corporation**, Chicago, was consolidated with the Los Angeles office, located at room 801, Pacific Electric building, Los Angeles, Cal., on August 1. **F. V. Shannon**, western manager, is now at the Los Angeles office.

The **Roberts & Schaefer Company**, Chicago, has extended its general office facilities and is now occupying the entire eleventh floor in the Wrigley building. The additional facilities were required because of a 57 per cent increase in business during the first seven months of this year, as compared with the same period last year.

The **Ohio Brass Company** is now manufacturing its regular and special types of its gas-weld signal bonds with either steel or copper terminals. Heretofore the bands have been made only with steel terminals but changing conditions have created a new set of requirements and the copper terminals are added to complete the line of signal bonds.

R. F. Stubblebine, railway sales engineer of the **Hale-Kilburn Company**, Philadelphia, Pa., has been appointed eastern sales manager, with headquarters at 30 Church street, New York, succeeding **A. F. Old**, deceased. Mr. Stubblebine has been with the **Hale-Kilburn Company** for the past 22 years serving in its engineering, production, and sales departments.

Harry W. Schott, assistant general sales manager of the **National Carbon Company, Inc.**, was appointed general sales manager on August 1. Mr. Schott has been identified with the electrical industry, in both the jobbing and manufacturing ends of the business for almost 25 years. In 1913, he went with the **American Eveready Works**; he then served in the Canadian territory for the **American Eveready Works**, whose Canadian branch was established in 1914, and when that branch was taken over by the **Canadian National Carbon Company** in 1918 he was appointed assistant sales manager. In 1920 he returned to New York as eastern sales manager of the **American Eveready Works**, and in 1921 when it was absorbed by the **National Carbon Company** he became the eastern district manager for the latter concern. He was appointed assistant general sales manager of the **National Carbon Company** in 1924, and continued in that capacity until his recent appointment as general sales manager.

Charles F. Palmer, who was recently appointed manager of sales of the **Pittsburgh Steel Products Company**, has assumed his new duties at the company's general offices in Pittsburgh, Pa. Mr. Palmer has for about twenty years been active in sales and executive capacities in the railway supply business. Prior to his connection with the **Pittsburgh Steel Products Company**, he was with the **Frank E. Palmer Supply Company**, St. Louis, in an official capacity, and



L. J. Belnap

previously was secretary of the J. W. Faessler Manufacturing Company, Moberly, Mo. For the past twelve years he has been manager of the Chicago office of the Pittsburgh Steel Products Company, and two years ago was appointed manager of railway sales of the same company in connection with the managership of the Chicago office. **C. H. Van Allen** has been appointed manager of the Pittsburgh Steel Products Company's Chicago office, to succeed Mr. Palmer. Mr. Van Allen served from 1893 to 1903 in various capacities with the Wabash, the Pennsylvania and the Lake Shore & Michigan Southern. In 1903 he became sales agent for John J. Dunn, wholesale and retail coal dealer, Chicago, and in 1911, went with the Griffin Wheel Company, also of Chicago. Since 1913 Mr. Van Allen has been connected with the Chicago office of the Pittsburgh Steel Products Company, Pittsburgh, Pa.

July Shipments of Locomotives

July shipments of railroad locomotives, from principal manufacturing plants, based on reports received by the Department of Commerce, compared with other months are as follows:

Year and month	Shipments					Unfilled orders, end of month				
	Domestic		Foreign		Total	Domestic		Foreign		Total
	Total	Steam	Elec- tric	Steam		Steam	Elec- tric	Steam	Elec- tric	
1925										
January ..	98	41	12	43	2	414	322	44	33	15
February ..	88	69	7	9	3	414	318	51	33	12
March ..	117	88	13	14	2	461	324	51	71	15
April ..	101	78	14	9	0	490	343	41	77	29
May ..	101	65	9	25	2	478	324	48	75	31
June ..	114	58	8	42	6	411	274	47	65	25
July ..	76	56	12	4	4	386	259	39	65	23
Total (7 months)	695	455	75	146	19	...	...	...	...	...
1926										
January ..	121	96	11	14	0	653	506	53	52	42
February ..	163	101	22	38	2	572	442	60	30	40
March ..	162	146	11	4	1	780	635	50	54	41
April ..	151	122	12	1	16	713	580	44	60	29
May ..	140	105	14	12	9	726	585	46	72	23
June ..	159	133	11	12	3	667	522	53	72	20
July ..	132	82	20	30	0	555	445	36	51	23
Total (7 months)	1,028	785	101	111	31	...	...	...	...	...

Obituary

William H. Elliot, vice-president and a director of the Ramapo Ajax Corporation and former president of the Elliot Frog & Switch Company of East St. Louis, Ill., died on August 8 at Green Bay, Wis., hospital, at the age of 62. He was born in Nashville, Tenn. His father, Henry Elliot, Sr., with his brother George Elliot, started the frog works at East St. Louis, Ill., in 1874. William H. Elliot attended the St. Louis, Mo., public schools and later graduated from the Kemper Military Academy at Boonville, Mo. His entire business career was spent with the Elliot Frog & Switch Company. He became president of the company on the death of his cousin, Henry Elliot, Jr., in September, 1921, and in October, 1924, when the company was taken over by the Ramapo Ajax Corporation, Mr. Elliot was elected vice-president and director in full charge of operation of the East St. Louis plant.



William H. Elliot

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—Bids are being accepted until August 25, for the construction of a two-story laboratory building, 200 ft. by 26 ft., at Argentine, Kan., which is estimated to cost \$70,000. Bids are also being accepted for a locomotive tender washing plant at Topeka, Kan., to cost approximately \$25,000.

CANADIAN NATIONAL.—A contract has been let to the E. J. Ryan Construction Company, Vancouver, B. C., for the construction of a 12-story hotel containing 512 rooms in Vancouver, B. C., estimated to cost \$4,000,000.

CHICAGO & NORTH WESTERN.—Bids are being received for the construction of a 60-ft. by 35-ft. power plant at Antigo, Wisconsin.

CHICAGO & NORTH WESTERN.—Bids are being received for the construction of an eight-stall brick roundhouse at Watersmeet, Mich.

CHICAGO, ROCK ISLAND & PACIFIC.—Plans have been prepared for the construction of an extensive yard layout at Joliet, Ill., which is estimated to cost \$250,000.

ELGIN, JOLIET & EASTERN.—This company is accepting bids for the construction of a one-story brick car department shop building to have dimensions of 354 ft. by 42 ft., and to be located at East Joliet, Ill.

FLORIDA EAST COAST.—A contract has been awarded to the Stevenson Engineering & Contracting Company, St. Augustine, Fla., for the construction of an inter-track fence, station platform, waiting booth and plank crossing over tracks situated between Jacksonville and New Smyrna, Fla., and between Salerno and Miami, Fla. The estimated cost is \$55,000. A contract has been awarded to the Royce Kershaw, Inc., St. Augustine, Fla., for a similar inter-track fence, platform, booth and crossing between Indian River City and Port Sewell, Fla., to cost approximately \$65,000.

GREAT NORTHERN.—The construction of a freight station at Seattle, Wash., to cost approximately \$750,000, has been authorized.

NORTHERN PACIFIC.—A contract has been awarded to E. J. Dunningan, St. Paul, Minn., for the construction of a freight station at St. Paul, to cost approximately \$400,000.

SEABOARD AIR LINE.—A contract has been awarded to the Roberts & Schaefer Co., Chicago, for the construction of a 200-ton, reinforced concrete coaling station with sanding facilities at Indiantown, Fla.

SEABOARD AIR LINE.—A contract for additional shop facilities and buildings at Indiantown, Fla., has been awarded to the Elliott Building Company, Hickory, N. C. Sutton Brothers, Jacksonville, Fla., have the contract for yard and shop track construction at the same point.

SOUTHERN ILLINOIS & KENTUCKY.—Bids were closed on August 17 for the construction of a water station at West Frankfort Junction, Illinois. The cost of this improvement is estimated at \$30,000.

SOUTHERN PACIFIC.—This company will construct a subway under its tracks on the north approach to the Sixty-ninth street bridge at Houston, Tex., the cost of which will be borne equally by the city and the railroad.

WABASH.—A contract has been awarded to Jerome Moss, Chicago, for the construction of a transfer house at Forty-seventh street, Chicago, to cost \$60,000.

WABASH.—Bids are being received for the construction of a three-story brick and concrete office building to have dimensions of 160 ft. by 68 ft., and to be located at Decatur, Ill.

Railway Financial News

CANADIAN PACIFIC.—New Directors.—The Right Hon. Reginald McKenna, P. C., and E. R. Peacock, both of London, England, have been elected directors succeeding Sir Augustus Nanton and Sir Thomas Skinner, Bart. Mr. McKenna is chairman of the London Joint City and Midland Bank. Mr. Peacock is a director of Baring Brothers & Co.

CENTRAL OF NEW JERSEY.—Equipment Trust.—This company has applied to the Interstate Commerce Commission for authority for an issue of \$2,670,000 of 4½ per cent equipment trust certificates under an equipment trust which provides for a maximum authorized issue of \$6,000,000. The company proposes to obtain competitive bids for the certificates.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—Protective Committee.—Ten Eyck Wendell, as chairman of a protective committee of common stockholders of the Cleveland, Cincinnati, Chicago & St. Louis, has issued a notice inviting minority stockholders to deposit their stock with the Central Union Trust Company of New York with a view to taking action for the protection of their interests. The notice states that the protective committee has been organized to oppose the consummation of the proposed lease to the New York Central and to negotiate for modifications thereof or for the disposal of the minority common stock on fair terms. The committee consists of Ten Eyck Wendell, chairman; John W. Morgan, F. B. Keech, G. Trowbridge Hollister, Fred H. Grenebaum, R. F. Westerfield, Seth B. Robinson, secretary, 42 West 44th street, New York City.

DENVER & SALT LAKE.—Receiver's Sale.—This company was sold on August 17 at a receiver's sale to a reorganization committee representing stockholders for \$3,750,000, the upset price fixed several weeks ago by Judge Samuel Johnson.

GETTYSBURG & HARRISBURG.—Bonds.—The Interstate Commerce Commission has granted authority to this company to extend from October 1, 1926, to October 1, 1936, the maturity of \$665,000 mortgage bonds, in connection with which there will be a decrease in the interest rate from 5 to 4½ per cent. At the same time the Reading Company, which owns approximately 96 per cent of the stock of the Gettysburg & Harrisburg, has been granted authority to assume obligation and liability for the payment of the principal and interest on the bonds in question.

GULF, MOBILE & NORTHERN.—Control of Jackson & Eastern.—The Interstate Commerce Commission has approved the application of the Gulf, Mobile & Northern for permission to acquire control of the Jackson & Eastern by purchase of the latter's capital stock. In connection with this acquisition the Gulf, Mobile & Northern will complete the Jackson & Eastern to Jackson, Miss., effect there a connection with the New Orleans Great Northern and in a connection with the recent acquisition of trackage rights over the Nashville, Chattanooga & St. Louis from Jackson, Tenn., to Paducah, Ky., form a new through route from New Orleans to northern points.

Tentative Valuation.—A valuation of \$10,660,000 for the property of the Gulf, Mobile & Northern, owned and used for common carrier purposes, as of 1917, has been found by the Interstate Commerce Commission in a tentative report. A valuation of \$10,660,065 was put on the property owned by the road while the total used property was valued at \$10,660,000.

The carrier's capitalization, as of valuation date, was reported as \$22,199,900 and the book investment in road and equipment, including land \$22,391,074, which the commission's report reduces to \$21,702,774. The cost of reproduction new of the property owned and used by the carrier is estimated at \$11,583,837 and cost of reproduction, less depreciation, at \$9,169,503.

The Gulf, Mobile & Northern owns and uses 401 miles of first main track, 0.906 miles of second main track, and 80,230 miles of yard, tracks and sidings. The main line extends northwest from Mobile, Ala., to Middleton, Tenn., a distance of 368.766 miles, with branches from Beaumont to Hattiesburg, Miss., and from Ellisville Junction to Ellisville, Miss.

HUTCHINSON & NORTHERN.—Stock.—The Interstate Commerce Commission has approved the issuance of \$110,000 capital stock to be delivered to the applicant's stockholders in exchange for capital stock issued under the approval of the Public Utilities Commission of Kansas in 1923 but without the authority of the Interstate Commerce Commission.

MERIDIAN TERMINAL.—Valuation.—A final value of \$390,074 has been placed on the property of this company owned and used for common carrier purposes, as of June 30, 1918.

MINERAL RANGE.—Abandonment.—The Mineral Range and the Hancock & Calumet have applied to the Interstate Commerce Commission for permission to abandon 2.1 miles of track formerly serving copper mines in Houghton and Keweenaw Counties, Michigan.

NEAME, CARSON & SOUTHERN.—Abandonment.—The Delta Land & Timber Company has applied to the Interstate Commerce Commission for authority to abandon this line, from Neame to Camp Baker, La., 25 miles.

NEW JERSEY, INDIANA & ILLINOIS.—Stock Dividend.—This company has applied to the Interstate Commerce Commission for authority to issue \$468,360 of additional capital stock, to capitalize expenditures for road and equipment from 1922 to December 31, 1925, to be issued as a stock dividend to the Wabash, which is the sole stockholder.

SOUTHERN PACIFIC.—Abandonment of Line.—The New Mexico & Arizona, a subsidiary of this company, has been authorized by the Interstate Commerce Commission to abandon that portion of its line from a point immediately south of Benson, Ariz., to a point immediately north of Fairbank, 15.661 miles. It was shown on the record that this line is closely paralleled by a line of the El Paso & Southwestern recently leased by the Southern Pacific.

ST. LOUIS & HANNIBAL.—Valuation.—A final value for rate-making purposes of \$1,906,770 has been placed on the properties owned and used by this company, as of June 30, 1918.

Dividends Declared

Chestnut Hill.—1½ per cent. quarterly, payable September 4 to holders of record August 20.
North Pennsylvania.—\$1, quarterly, payable August 25 to holders of record August 16.
Southern Pacific.—1½ per cent., quarterly, payable October 1 to holders of record August 27.
Union Pacific.—Common, 2½ per cent., quarterly; preferred, 2 per cent., both payable October 1 to holders of record September 1.

Average Price of Stocks and Bonds

	Aug. 17	Last Week	Last Year
Average price of 20 representative railway stocks	100.13	97.89	87.29
Average price of 20 representative railway bonds	97.69	97.21	91.03

Valuation Reports

The Interstate Commerce Commission has issued final or tentative valuation reports, placing the final value for rate-making purposes of the property owned and used for common carrier purposes, as of the respective valuation dates, as follows:

FINAL REPORTS		
Cape Charles	\$143,412	1915
Chiswick & Marmar	150,250	1916
Columbia Union Station	162,331	1916
Cuyahoga Valley	127,285	1917
Edgemoor & Manetta	23,500	1918
Euclid	29,861	1918
Flint River & Northeastern	256,792	1915
Fort Smith, Poteau & Western	41,600	1918
Monroe	121,000	1916
Ruby & Northern	50,500	1918
Salem, Winona & Southern (used but not owned)	98,500	1917
Wellington & Powellsville	180,550	1917
Wyoming	448,160	1918
TENTATIVE REPORTS		
Prattsburg	\$160,220	1918
Ursina & North Fork	102,143	1918
West Virginia Midland	535,295	1918

Railway Officers

Financial, Legal and Accounting

Frank J. Flispart, chief clerk to the secretary and auditor of the Kentucky & Indiana Terminal, with headquarters at Louisville, Ky., has been promoted to secretary and auditor,

to succeed Edmund K. Scott, resigned. Mr. Flispart was born on February 22, 1890, at New Albany, Ind., and was educated in the public schools and New Albany Business College. He entered railway service in May, 1906, as a stenographer in the freight claim department of the Louisville & Nashville at Louisville, Ky. From 1909 to 1911 he was in the operating and executive departments of the Public Utilities Companies at New Albany, Ind., and from 1911 to 1917 in the accounting department

of the Kentucky & Indiana Terminal Railroad Company, with headquarters at Louisville, Ky. He enlisted on May 1, 1917, in the 7th U. S. Cavalry, El Paso, Tex., and on December 26, 1918, was discharged as a second lieutenant. From 1919 to 1926 he occupied the position of chief clerk to the secretary and auditor, which position he has held until his recent promotion.

Edmund K. Scott, secretary and auditor of the Kentucky & Indiana Terminal, with headquarters at Louisville, Ky., has resigned to become vice-president and treasurer of the

Scott Seed Company at New Albany, Ind. He was born on December 2, 1883, at New Albany, Ind., and was educated in the public schools and New Albany Business College. He entered railway service in July, 1904, as a stenographer in the freight claim department of the Louisville & Nashville, with headquarters at Louisville, Ky. From 1907 to 1909 he was in the operating and executive departments of the Public Utilities Companies at New Albany, Ind., and from 1909 to 1911 in the car

service department of the Louisville & Nashville. From 1911 to 1914 he was in the operating and accounting departments of the Kentucky & Indiana Terminal, with headquarters at Louisville, Ky., and from 1914 to 1918 he occupied the position of chief clerk to the secretary and auditor. In 1918 he was appointed chief accountant and in 1919 he became secretary and auditor, which position he held until his resignation on August 1, 1926, to take up the duties of his new position with the Scott Seed Company.



F. J. Flispart



E. K. Scott

Executive

Pursuant to the acquisition of control by the Gulf, Mobile & Northern, the general offices of the Jackson & Eastern are now located at Mobile, Ala. The officers of the company are as follows: **S. A. Neville**, president, Meridian, Miss. **R. F. Brown**, secretary, New York, N. Y. **P. E. Odell**, vice-president and general manager, Mobile, Ala. **H. F. Ricker**, treasurer and assistant secretary, Mobile, Ala. **F. M. Hicks**, traffic manager, Mobile, Ala. **R. E. DeNeefe**, comptroller, Mobile, Ala. **J. C. Rich**, general solicitor, Mobile, Ala., and **H. E. Warren**, manager purchases and stores, Mobile, Ala. Correspondence heretofore addressed to officers at Meridian, Mississippi, should be addressed to the officers named above.

Operating

J. R. Talbott, who has been appointed superintendent of transportation of the Norfolk & Western, with headquarters at Roanoke, Va., was born on August 24, 1874, at Ashland,

Ky., and was educated in the public schools. He entered railway service in May, 1890, as a yard clerk on the Norfolk & Western, at Coal Grove, Ohio. From June, 1892, to April, 1899, he was clerk in the car record office, and from the latter date until May, 1900, was traveling car agent. He then became car accountant, which position he held until June, 1917. In July, 1917, Mr. Talbott became superintendent of car service, which position he was holding at the time of his recent appointment

as superintendent of transportation.

A. E. Staub, who has been appointed assistant to the vice-president and general manager of the Delaware, Lackawanna & Western, at New York, began railway work in

April, 1892, as a clerk in the freight office of the Delaware, Lackawanna & Western at Buffalo, N. Y. He subsequently served as assistant cashier and accountant; then from August, 1899, to November, 1907, as timekeeper and division accountant in the superintendent's office at Buffalo. In November, 1907, he was appointed assistant chief clerk in charge of operating statistics in the general superintendent's office at Scranton, Pa. From September, 1913, to July, 1914, he was engaged on special

work for vice-president and controller of the Union Pacific. In July, 1914, he returned to the service of the Delaware, Lackawanna & Western as inspector in charge of the weighing and inspection bureau. Three years later he was appointed superintendent of car service, with headquarters at Scranton, Pa. Mr. Staub subsequently became division su-



J. R. Talbott



A. E. Staub

perintendent at Buffalo, N. Y., which position he held until his recent appointment as assistant to the vice-president and general manager.

Daniel Healy has been appointed trainmaster of the Northern Pacific, with headquarters at Livingston, Mont.

Harry C. Allen, trainmaster of the Northern Pacific, with headquarters at Livingston, Mont., has been transferred to the Yellowstone division as road foreman, with headquarters at Forsyth.

J. G. Sutherland, inspector of transportation on the western lines of the Canadian Pacific, has been appointed superintendent of the Calgary division, with headquarters at Calgary, Alta., to succeed **J. D. Fraine**, who has been transferred to Revelstoke, B. C.

B. J. Feeny, traveling engineer of the Memphis Terminal division of the Illinois Central, with headquarters at Memphis, Tenn., has been promoted to superintendent of fuel conservation, with headquarters at Chicago, to succeed **J. W. Dodge**, retired.

F. M. Hawthorne, division engineer of the Pennsylvania, with headquarters at Terre Haute, Ind., has been appointed acting superintendent of the St. Louis division, with the same headquarters, to succeed **Taber Hamilton**, who has been granted a leave of absence.

J. W. Payne, formerly superintendent of the Southern at Sheffield, Ala., has been appointed superintendent of the Georgia Southern & Florida (a part of the Southern), with headquarters at Macon, Ga., succeeding **H. A. DeButts**, transferred. **C. Chandler**, general superintendent of the Southwestern district at Chattanooga, Tenn., has been transferred to Sheffield, Ala., as superintendent of the Memphis division, succeeding **J. W. Payne**.

G. P. Brock, assistant general manager of the Gulf, Mobile & Northern, with headquarters at Laurel, Miss., has been appointed assistant general manager of the Jackson & Eastern, with the same headquarters. **C. E. Lanham**, superintendent of transportation of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala., has been appointed superintendent of transportation of the Jackson & Eastern, with the same headquarters, pursuant to the acquisition of control of the Jackson & Eastern by the Gulf, Mobile & Northern.

Traffic

F. A. Key, Jr., assistant general freight and passenger agent of the Louisiana & Arkansas, with headquarters at Shreveport, La., has been promoted to general freight and passenger agent, with headquarters at Texarkana, Ark., to succeed **J. R. McClurken**, who has resigned. Mr. Key will be succeeded by **H. R. Whiting**, general agent, with headquarters at Oklahoma City, Okla., who in turn will be succeeded by **W. D. Burch**, traveling freight agent, with headquarters at Shreveport, La.

Mechanical

B. H. Gray, superintendent of motive power of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala., has been appointed superintendent of motive power of the Jackson & Eastern, with the same headquarters, pursuant to the acquisition of control of this property by the Gulf, Mobile & Northern.

O. E. Ward, master mechanic of the Chicago, Burlington & Quincy, with headquarters at Alliance, Nebr., has been promoted to superintendent of motive power, lines west, with headquarters at Omaha, to succeed **T. Roope**, with headquarters at Lincoln, Nebr., who has been granted a furlough. Mr. Ward will be succeeded by **G. B. Pauley**, master mechanic, with headquarters at Omaha, Nebr., who in turn will be succeeded by **G. P. Trachta**, roadhouse foreman, with headquarters at Kansas City, Mo.

O. E. Ward, master mechanic of the Alliance division of the Chicago, Burlington & Quincy with headquarters at Alliance, Nebr., has been promoted to superintendent of motive power of the lines west of the Missouri river, with headquarters at Lincoln, Nebr., succeeding **T. Roope**, who has been granted leave of absence. **H. H. Urbach**, master mechanic of the McCook division, with headquarters at McCook, Nebr., has been promoted to assistant superintendent of motive power of the lines east of the Missouri river, with headquarters at Chicago, succeeding **H. M. Odaec**, who has been appointed master mechanic of the McCook division.

Engineering, Maintenance of Way and Signaling

H. W. Brown, assistant engineer of the Pennsylvania, with headquarters at Chicago, has been appointed acting division engineer of the St. Louis division, with headquarters at Terre Haute, Ind., to succeed **F. M. Hawthorne**, promoted.

L. P. O. Exley, chief engineer of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala., has been appointed chief engineer of the Jackson & Eastern, with headquarters at Laurel, Miss., pursuant to acquisition of control of the latter property by the former.

H. R. Clark, general inspector of permanent ways of the Chicago, Burlington & Quincy, with headquarters at Chicago, has had his jurisdiction extended over the Colorado & Southern. **C. P. O'Neill**, assistant engineer maintenance of way of the Chicago, Burlington & Quincy, with headquarters at Alliance, Neb., has been appointed engineer maintenance of way of the Colorado & Southern, with headquarters at Denver, Colo.

Special

E. A. Lalk, assistant general freight agent of the Chicago, Milwaukee & St. Paul, with headquarters at Milwaukee, Wis., has been promoted from 1st lieutenant, Engineers Reserve, United States Army, to captain, Engineers Reserve, United States Army. He is assigned to the 609th Railway Engineers Battalion.

NOGALES will soon be on a main line between Mexico City and United States Pacific coast, with the completion of the Southern Pacific of Mexico line between Tepic and La Quemada. This work will be finished about January 1, 1927, and trains will be running through to Mexico City before the end of that month.



The B. & M. Pine Tree Limited Near Salisbury, Mass.